

BEDIA®

MOTORENTECHNIK



DC/DC CONVERTER

- TYPE SPW 003
- TYPE SPW 005
- TYPE SPW 008
- TYPE SPW 010
- TYPE SPW 015
- TYPE SPW 020
- TYPE SPW 030



THOUGHT-OUT SOLUTIONS AT THE HIGHEST LEVEL

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BEDIA

The company

Measuring with system and passion

As a high performance and innovative company BEDIA develops, produces and distributes well thought out solutions for level and temperature monitoring.

We have been concentrating our skills in the domain of measuring filling levels and temperatures under extreme operating conditions. We are able to offer customized solutions to the specific requirements of our clients for small to large series. In doing so we are combining tried and tested technologies with innovative product ideas. Our expertise and flexibility are well demonstrated in the development of customer specific solutions.

One thing that all our products have in common is the nonexistence of moving or adjustable parts; our parts are not subject to mechanical interference and exhibit exceptional operational reliability.

Since 1986 BEDIA Motorentechnik is a valued partner of numerous manufacturers of agricultural and construction machinery, compressors, engines, power train control systems and utility vehicles.

The high quality requirements of our world wide operating customers are our motivation for the constant improvement of our products and processes. The stable customer relationships of many years standing express the high quality of our products and the satisfaction of our customers.

We hope you will get a comprehensive overview of our products from this catalog. Please feel free to contact us, we will be happy to assist you with our advice and experience.



Company history at a glance

| | |
|------|--|
| 2015 | Currently 115 employees |
| 2012 | Foundation of BEDIA Sensors USA in Austin, Texas |
| 2009 | Relocation of BEDIA Motorentechnik and BEDIA Kabel to the new corporate building in Altdorf in the industrial park near the A6. |
| 2008 | Takeover of the production for sensors from the business entity E-T-A in Altdorf |
| 2006 | Spin-off of the new BEDIA Kabel business unit from BEDIA Motorentechnik GmbH & Co. KG into BEDIA Kabel GmbH & Co. KG. |
| 2005 | Reorganization of BEDIA Motorentechnik GmbH into BEDIA Motorentechnik GmbH & Co. KG, preparation and the transfer of business administration to Holger Schultheis. |
| 2000 | Sale of the water treatment business unit to Aqua-Concept GmbH. |
| 1994 | Transfer of the Sensor Systems and Water Treatment business unit from BEDIA Maschinenfabrik to BEDIA Motorentechnik. |
| 1986 | Foundation of BEDIA Motorentechnik in Leinburg. Core focus business with vehicle wiring cables and delivery of sensor parts for the Bedia Maschinenfabrik in Bonn. |

Our products at a glance

- capacitive level sensors for a versatile range of applications:
 - CLS 20/25 for railway applications tested according to DIN EN 50155
 - CLS 40/45 for off- and onroad applications with E1-type approval of the KBA
 - CLS50/55 for maritime applications with approvals of the classification societies
- intelligent, analog tank sensors for fuels and oils
- intelligent, analog hot wire sensors for monitoring oil sump fill levels
- temperature sensors
- mechanical temperature switches
- electronic temperature switches
- electronic temperature sensors
- DC/DC converters



**We are certified in accordance with
ISO 9001:2008 and ISO 14001:2004.**



GENERAL DESCRIPTION

Non-isolated switched mode DC/DC converters

These converters are used to reduce a 24V battery voltage to a lower voltage

The devices are specifically suited to install e.g. car stereos, two-way radios or cool boxes in trucks, busses, construction vehicles, etc.

In order to preserve battery and alternator, it is vital to keep energy consumption as low as possible. Also, generation of heat should be avoided. Both can be achieved with switched mode conversion, through which the voltage is nearly halved and the current is doubled. Power dissipation in the device is very low, which means that its efficiency is 92%. These are advantages compared to linear power supplies.

The converters are encased in a robust metal casing. They are short-circuit-protected, current-limited, protected against load-dump. They provide a stable output voltage for a variety of application.

The converters are RoHS-compliant and have the E1 automotive certified no. 10R - 046944. CE-marking and ISO-9001 certification guarantee the highest quality standards.

Installation advice

The device should be installed at a well ventilated and dry location. For installation note that the DC/DC converter should be mounted on a metal part of the chassis.

CONNECTORS AND DESIGNS

DC/DC converter



- SPW 003
cable with 2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 9



- SPW 005
cable with 2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 9



- SPW 010
cable with 2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 9



- SPW 015
cable with 2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 9

TECHNICAL DATA

for converters with cable and 2-pole connector
blade terminal 6,3 x 0,8

Technical Data

| | |
|-------------------------------|----------------------------|
| Input voltage | 18 - 32 VDC |
| Output voltage | 13,5 VDC (-1 V / +0,5 V) |
| | 13,5 VDC (-4,5 V / +0,5 V) |
| Voltage ripple on the output | < 50 mV |
| Output current (max) | see order number overview |
| Output current (continuously) | see order number overview |
| Idle current consumption | < approx. 5 mA |
| Efficiency | up to 92% |
| Frequency | 72 kHz |
| Ambient temperature range | -40 °C to +80 °C |
| IP protection | IP 40 |
| Short-circuit proof | yes |
| Current-limited | yes |
| Load-drop protected | yes |
| Dimensions L x B x H [mm] | see order number overview |
| Weight | see order number overview |
| RoHS - compliant | yes |
| E1 approval number | 10R – 046944 |
| CE-approval | yes |

ORDER NUMBER OVERVIEW

Converters with cable and 2-pole connector blade terminal 6,3 x 0,8

| Output current (continuous) | Output current (max 3 min.) | Dimensions LxBxH (in mm) | Weight (in g approx.) | Order number |
|--------------------------------|--------------------------------|-----------------------------|-----------------------|--------------|
| 3 A | 4 A | 43 x 150 x 60 | 240 | 422 384 |
| 5 A | 6 A | 58 x 150 x 60 | 340 | 422 385 |
| 10 A | 15 A | 88 x 150 x 60 | 550 | 422 386 |
| 15 A | 20 A | 128 x 150 x 60 | 760 | 422 387 |

CONNECTORS AND DESIGNS

DC/DC converter



■ SPW 020 / SPW 030
cable without connector
protection class IP40 according to DIN 40050

» [Order number overview at page 11](#)

TECHNICAL DATA

for converters with cable without connector

Technical Data

| | |
|-------------------------------|----------------------------|
| Input voltage | 18 - 32 VDC |
| Output voltage | 13,5 VDC (-1 V / +0,5 V) |
| > -20 °C | |
| < -20 °C | 13,5 VDC (-4,5 V / +0,5 V) |
| Voltage ripple on the output | < 50 mV |
| Output current (max) | see order number overview |
| Output current (continuously) | see order number overview |
| Idle current consumption | < approx. 5 mA |
| Efficiency | up to 92% |
| Frequency | 72 kHz |
| Ambient temperature range | -40 °C to +80 °C |
| IP protection | IP 40 |
| Short-circuit proof | yes |
| Current-limited | yes |
| Load-drop protected | yes |
| Dimensions L x B x H [mm] | see order number overview |
| Weight | see order number overview |
| RoHS - compliant | yes |
| E1 approval number | 10R – 046944 |
| CE-approval | yes |

ORDER NUMBER OVERVIEW

Converters with cable without connector

| Output current (continuous) | Output current (max 3 min.) | Dimensions LxBxH (in mm) | Weight (in g approx.) | Order number |
|--------------------------------|--------------------------------|-----------------------------|-----------------------|--------------|
| 20 A | 30 A | 128 x 150 x 60 | 820 | 422 388 |
| 30 A | 40 A | 128 x 150 x 60 | 840 | 422 389 |

CONNECTORS AND DESIGNS

DC/DC converter



- SPW 003
2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 13



- SPW 005
2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 13



- SPW 010
2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 13



- SPW 015
2-pole connector blade terminal 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 13

TECHNICAL DATA

for converters with 2-pole connector blade terminal 6,3 x 0,8

Technical Data

| | |
|-------------------------------|----------------------------|
| Input voltage | 18 - 32 VDC |
| Output voltage | 13,5 VDC (-1 V / +0,5 V) |
| > -20 °C | |
| < -20 °C | 13,5 VDC (-4,5 V / +0,5 V) |
| Voltage ripple on the output | < 50 mV |
| Output current (max) | see order number overview |
| Output current (continuously) | see order number overview |
| Idle current consumption | < approx. 5 mA |
| Efficiency | up to 92% |
| Frequency | 72 kHz |
| Ambient temperature range | -40 °C to +80 °C |
| IP protection | IP 40 |
| Short-circuit proof | yes |
| Current-limited | yes |
| Load-drop protected | yes |
| Dimensions L x B x H [mm] | see order number overview |
| Weight | see order number overview |
| RoHS - compliant | yes |
| E1 approval number | 10R – 046944 |
| CE-approval | yes |

ORDER NUMBER OVERVIEW

Converters with 2-pole connector blade terminal 6,3 x 0,8

| Output current (continuous) | Output current (max 3 min.) | Dimensions LxBxH (in mm) | Weight (in g approx.) | Order number |
|--------------------------------|--------------------------------|-----------------------------|-----------------------|--------------|
| 3 A | 4 A | 58 x 150 x 60 | 340 | 422 372 |
| 5 A | 6 A | 58 x 150 x 60 | 340 | 422 373 |
| 10 A | 15 A | 88 x 150 x 60 | 550 | 422 374 |
| 15 A | 20 A | 128 x 150 x 60 | 760 | 422 375 |

CONNECTORS AND DESIGNS

DC/DC converter



- SPW 003
connector blade terminal strip 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 15



- SPW 005
connector blade terminal strip 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 15



- SPW 010
connector blade terminal strip 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 15



- SPW 015
connector blade terminal strip 6,3x0,8
protection class IP40 according to DIN 40050

» Order number overview at page 15

TECHNICAL DATA

for converters connector blade terminal strip 6,3x0,8

Technical data

| | |
|------------------------------|----------------------------|
| Input voltage | 18 - 32 VDC |
| Output voltage | 13,5 VDC (-1 V / +0,5 V) |
| > -20 °C | 13,5 VDC (-4,5 V / +0,5 V) |
| < -20 °C | |
| Voltage ripple on the output | < 50 mV |
| Output current (max) | see order number overview |
| Output current (continuosly) | see order number overview |
| Idle current consumption | < approx. 5 mA |
| Efficiency | up to 92% |
| Frequency | 72 kHz |
| Ambient temperature range | -40 °C to +80 °C |
| IP protection | IP 40 |
| Short-circuit proof | yes |
| Current-limited | yes |
| Load-drop protected | yes |
| Dimensions L x B x H [mm] | see order number overview |
| Weight | see order number overview |
| RoHS - compliant | yes |
| E1 approval number | 10R – 046944 |
| CE-approval | yes |

ORDER NUMBER OVERVIEW

Converters with connector blade terminal strip 6,3x0,8

| Output current (continuous) | Output current (max 3 min.) | Dimensions LxBxH (in mm) | Weight (in g approx.) | Order number |
|--------------------------------|--------------------------------|-----------------------------|-----------------------|--------------|
| 3 A | 4 A | 43 x 150 x 60 | 240 | 422 393 |
| 5 A | 6 A | 58 x 150 x 60 | 340 | 422 394 |
| 10 A | 15 A | 88 x 150 x 60 | 550 | 422 395 |
| 15 A | 20 A | 128 x 150 x 60 | 760 | 422 396 |

CONNECTORS AND DESIGNS

DC/DC converter



■ SPW 008

Connector bayonet according to ISO 15170
protection class IP40 according to DIN 40050

» [Order number overview at page 17](#)

TECHNICAL DATA

for converters connector bayonet according to ISO 15170

Technical Data

| | |
|------------------------------|----------------------------|
| Input voltage | 18 - 32 VDC |
| Output voltage | 13,5 VDC (-1 V / +0,5 V) |
| > -20 °C | |
| < -20 °C | 13,5 VDC (-4,5 V / +0,5 V) |
| Voltage ripple on the output | < 50 mV |
| Output current (max) | see order number overview |
| Output current (continuosly) | see order number overview |
| Idle current consumption | < approx. 5 mA |
| Efficiency | up to 92% |
| Frequency | 72 kHz |
| Ambient temperature range | -40 °C to +80 °C |
| IP protection | IP 40 |
| Short-circuit proof | yes |
| Current-limited | yes |
| Load-drop protected | yes |
| Dimensions L x B x H [mm] | see order number overview |
| Weight | see order number overview |
| RoHS - compliant | yes |
| E1 approval number | 10R – 046944 |
| CE-approval | yes |

ORDER NUMBER OVERVIEW

Converters with connector bayonet according to ISO 15170

| Output current (continuous) | Output current (max 3 min.) | Dimensions LxBxH (in mm) | Weight (in g approx.) | Order number |
|--------------------------------|--------------------------------|-----------------------------|-----------------------|--------------|
| 3 A | 4 A | 58 x 150 x 60 | 340 | 422 378 |
| 5 A | 6 A | 58 x 150 x 60 | 340 | 422 379 |
| 8 A | 10 A | 88 x 150 x 60 | 560 | 422 399 |

APPLICATION EXAMPLES



APPLICATION EXAMPLES



Rev. 6/2016 - EN

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