EMCOTEC®
embedded controller technologies

DPSI® BIC

English

Dual **P**ower **S**ystem **I**nterface
Battery **I**nformation **C**ircuitry

Dual battery supply with voltage regulation, monitoring and LC-display

Operating Manual V2

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1. Preface

With the **DPSI BIC** (**D**ual **P**ower **S**ystem **I**nterface – **B**attery **I**nformation **C**ircuitry) you have purchased a high quality and reliable power supply system. We thank you for your faith in our products and assure you that you have made the right decision! Years of experience in development and manufacturing of electronic components as well as know-how of the world's best model pilots went into the product**.**

All systems are developed and manufactured in house at EMCOTEC Germany. Elaborated optical and electronically end tests of each system leaving our house make sure, that you, our customer, acquire an absolutely reliable product which significantly increases the operational safety of your valuable RC model.

Please read this operating manual carefully in order to use all functions of the **DPSI BIC** optimally**.** We wish you success for all times and enjoyment with this high quality product!

2. Characteristics

The **DPSI BIC** is the first power supply concept which, besides a redundant battery function and a low drop out voltage regulation also contains a LC-display, which provides the user with information about the state of his equipment.

The **DPSI BIC** displays all important measured values in plain text. Besides the battery voltages and the current flow of the connected loads (minimal / average / actual / maximum values) the withdrawn capacity and power-on time are displayed. Due to the manifold information of the **DPSI BIC,** errors in the receiver set can be detected.

Rough running push-rods or defective servos can be diagnosed by increased current consumption.

Reduced battery capacity caused by aging or defectiveness of the batteries are detected by a low voltage warning.

In addition to the visual data provided by the LC-display there is a piezo-buzzer integrated into the **DPSI BIC** which indicates error information (e.g. low voltage) acoustically, too.

Three printed circuit boards, equipped on both sides with most modern parts allow for optimal space usage and are integrated into a stable and ergonomic housing.

Usage of pin-and-socket connectors allow for simple exchange of connector cables and guarantees maximum flexibility. The generous sized heat sink serves for good heat dissipation and allows for high currents of the connected loads.

An optional external switch allows for applications where no direct access to the pushbuttons of the **DPSI BIC** is possible.

Hint:
At shipping, the following default parameters are programmed:
Battery type: 2-cell LiPo batteries
Output voltage: 5.9 Volt (constant value – other values only on request!)

3. Features of the DPSI BIC

The **DPSI BIC** provides the receiver set with a stabilized voltage from two independent batteries and allows for optical and acoustical control of all important parameters.

- ❍ Dual current supply with regulated voltage for receiver, servos, ignitions and applications of all kind which are supplied with 5.9 volts
- ❍ Conforms to all manufacturer specifications for RC receiver sets by providing a stabilized voltage
- ❍ Continuous constant servo power using constant power supply
- ❍ 2-cell LiIon / LiPo / LiFePO4-batteries usable
- ❍ 5-6-cell NiCd / NiMH-batteries usable
- ❍ Electronically failsafe On/Off-switch with possible connection of an optional external switch actuator
- ❍ Absolutely safe switching concept due to **CSHC** (controller-less self holding circuitry)
- ❍ Up to 20A peak current load capacity
- ❍ **IVM** Intelligent Voltage Monitoring – with acoustically state indication for five different battery types (programmable)
- ❍ Programmable user language (German / English)
- ❍ 8-Bit Microcontroller for data acquisition and display control (not used for power on, making it even safer)
- ❍ LC-Display with display of voltage, current, capacity, operating-time, error indication

- Cable free system; i.e. all leads pluggable and therefore exchangeable at any time
- High-quality plastic housing including bracket for the battery connectors
- Reliable recognition of damaged servos or push-rods (e.g. raised current consumption)
- Reliable recognition of defective or aging batteries
- Three double-sided printed circuit board assemblies for highest part density and therefore small dimensions
- Generously sized heat sink for efficient heat dissipation
- Each system is 100% tested

3.1. LC-Display

The LC-display shows all information in plain text in two lines, 8 characters each. Besides the actual voltage of both batteries, it also displays the maximum and minimum voltage of each battery on demand. Furthermore the actual current consumption can be read. Here too, besides the actual value, the maximum and average values are displayed in the current turn-on cycle. The withdrawn capacity from both batteries as well as the system on-time is displayed and saved in the **DPSI BIC.** Capacity (in mAh) and system on-time (in minutes) can be reset on demand.

3.2. IVM (Intelligent Voltage Monitoring)

An internal 8-Bit-microcontroller monitors all voltages based on an intelligent algorithm and displays different errors (low voltage, voltage error and missing battery) on the LC-display in plain text. An acoustic indication takes place through a built in piezo-buzzer. The algorithm inhibits erroneous recognition of batteries pretending emptiness and informs the user at approximately 60%-70% discharge of the battery.

3.3. Integrated Accessory Set

Delivery of the **DPSI BIC** contains all of these small parts needed for connecting batteries and the receiver set. Both high current sockets (including shrink-hose for isolating soldering) are intended for connecting the battery connection cable if not already provided otherwise. The receiver connection cable is fitted with two 0.5mm^2 silicone cables which supply the receiver (JR/Uni). The silicone cables are carried out twice to avoid voltage loss on high loads and to increase safety.

4. Packing Contents

Content of delivery:

- **DPSI BIC** basis device
- Mounting frame for M3 stop nuts
- 2 screws M3x20 with stop nuts
- 2 brackets for locking the connectors
- 2 high current sockets for the battery leads
- 4 pieces of shrinkable hoses for isolation
- dual connection cable **DPSI BIC** <-> receiver
- Operating Manual
- EMCOTEC sticker

5. Optional Accessories

5.1. DPSI BIC Switch Actuator

If the **DPSI BIC** is mounted at a place where it is not accessible easily (e.g. cockpit instrument), an external switch can be connected. The switch can be placed on the sidewall of the fuselage and connected to the **DPSI BIC** by the 4-wire flat cable (at the lower side of the housing). Inverse polarity protection provides for a safe connection. On/off is done by a connector pin – the optical fault indication via an ultra light LED in the switch.

5.2. DPSI BIC Magnetically Switch Actuator

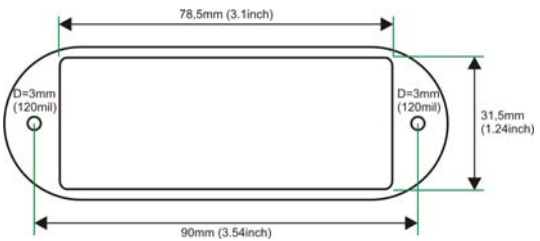
Like the switch actuator the magnetically switch actuator is intended for applications where the buttons of the **DPSI BIC** are not easily accessible. The advantage of the magnetically switch actuator is its small mounting cutout. A small hole of 3mm / 0.12” for the controlling LED suffices. The actual switching occurs by holding an external magnet against the on- or off-position for a short period of time. The magnetically switch actuator needs extremely little space and can be mounted without attracting attention.

6. Mounting Instructions

6.1. Mounting the DPSI BIC

The **DPSI BIC** is designed as a cockpit instrument and can be used as such (especially interesting for scale models). Of course, mounting on a small board inside the fuselage is possible, too. The installation location should not be exposed to extreme vibrations (e.g. side wall of fuselage without reinforcing frame). A counter bearing firmly fixes the **DPSI BIC.** Fastening takes place through supplied M3 screws and stop nuts which do not open even on vibrations.

Dimensions for mounting:

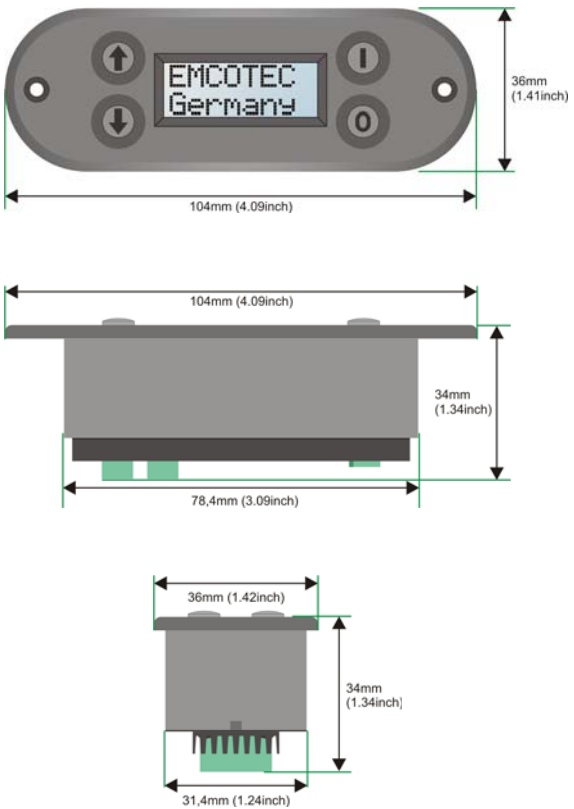


Hint:
The mounting frame can also be used as a template for the cut-out! Simply put it on and mark the inner contour and mounting holes.

After mounting, the connection cables can be plugged into the corresponding sockets / plugs. In order to inhibit loosening of the connections through vibrations, the supplied bracket is locked between the positive and negative poles of the MPX connector cables and sideways at the housing of the **DPSI BIC**. This ensures the connections are secured against potential loosening.

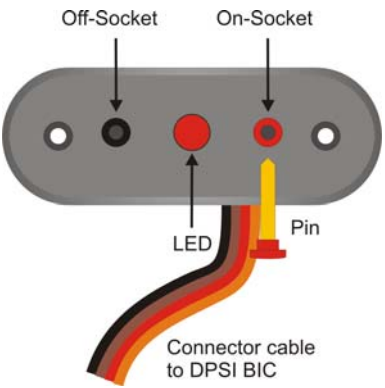
Connector protection using the bracket:

6.2. Dimensions of the DPSI BIC



6.3. Connecting the optional Switch Actuator

Positioning the switch is arbitrary (e.g. at side wall of fuselage).The connection cable with the plug is connected to the strip inside the **DPSI BIC.** Reverse polarity is impossible thanks to the reverse polarity protection.



Turning the **DPSI BIC** on is done by putting the pin into the red socket. Putting the pin into the black socket, turns the **DPSI BIC** off.

Hint:
A lost pin can be substituted by a 2mm wire or 2mm screw by putting it into the corresponding socket.

Hint:
Once the **DPSI BIC** has been powered on it stays on if the pin is lost or the external switch is removed!

The magnetically switch actuator can be glued to the fuselage's inner side wall using silicone glue. This connection is advantageous because it is flexible and dampens vibrations. Drill a 3mm/0.118" hole for the LED. The delivered magnet (housed in the red plastic cone) serves as switching element. If it is hold against the power-on position near the LED for approx. 1 second, the magnet turns the **DPSI BIC** on. The LED serves for orientation. Hold the magnet close to the power off position for approx. 2 seconds in order to turn it off.

If the magnet is positioned inside the undefined area above the LED, no switching can be initiated. The distance between magnet and switch actuator must not be to long – anyway, the width of a fuselage's side wall is possible (up to 8mm).

Hint:
In order to store the magnet of the magnetically switch actuator glue a small iron piece onto the transmitter console where the magnet adheres to while not needed.

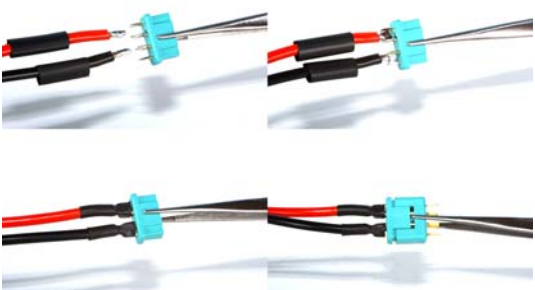
The central ultra light LED in the switch is lit when the **DPSI BIC** is turned on (pin in the red socket). In case of an error the LED blinks synchronously with the piezo-buzzer, if the buzzer is enabled.

Hint:
The switch actuator's LED only blinks for errors if the buzzer is activated. If the buzzer is deactivated the LED is steadily lit during power on (even when errors occur).

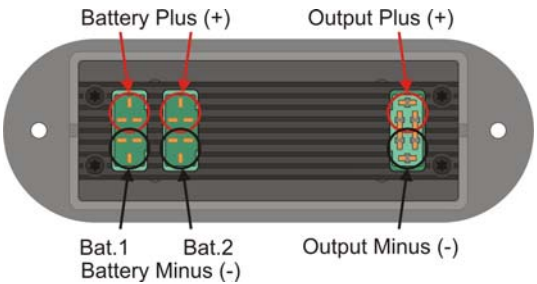
7. Soldering the Battery Sockets

The high current sockets/plugs are marked with + and –. **It is mandatory to observe this marking!** The insulation of the cables is first stripped (5mm / 0.2") and then tin-plated. Push a heat shrink tube over the particular cable end before soldering the socket / plug. The cable is soldered inside of all 3 pins of the plug/socket (see photo). If thin cables are used, the pins of the socket can be bent toward the virtual center. In order to guaranty good contact, use plenty of solder. Afterwards shrink the heat shrink tubes using a heat gun.

Soldering high current sockets/plugs:



Hint:
It suffices to use just one shrink tube (see photo) for isolation. Do not put a shrink tube over both cables! There must be enough room left between the positive and negative poles for the bracket.



CAUTION:
The DPSI BIC is not reverse polarity protected by design! Please observe that the batteries are always connected correctly, i.e. the red wire always to the positive pole and the black wire always to the negative pole. Please double check!

Hint:
The delivered cable for connecting the receiver holds two cables with a JR-connector each. One plug connects to the battery slot of the receiver (power supply). Put the second plug into any unused servo slot. Now the receiver is supplied twice and voltage drop is lowered on load.

8. Charging the Batteries

The **DPSI BIC** switches battery positive, i.e. both batteries are, if connected to the **DPSI BIC**, connected through negative (ground). If charging of the batteries should be possible while they are connected to the **DPSI BIC**, a second cable must be soldered to each battery or the batteries must be connected by a V-cable (there is a charging socket already integrated into LongGo batteries).

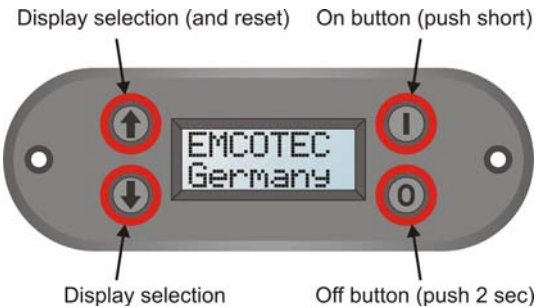
If in doubt, it is reasonable and safer to disconnect the batteries from the **DPSI BIC.** The bracket must then be unlocked, if used.

Hint:
Batteries with an additional charging cable (e.g. V-cable or charging connector) must be charged one after another if connected to the **DPSI BIC** during recharge! Simultaneously charging is not possible even with a charger with two outputs.

Hint:
Two identical batteries have to be used, i.e. same battery type (NiCd, NiMH, LiIon, LiPo or LiFePO4 and same number of cells). The capacity may be different, although it does not make sense.

Hint:
If the batteries are connected to the **DPSI BIC** during charging, a charger must be used, whose output voltage (charge voltage) never exceeds 14V (=> limiting step up converter). This is the case for all chargers (starting 2007). If the step up converter is not limited, damage to the **DPSI BIC** is possible. If in doubt ask the manufacturer of your charger!

9. Beginning of Operation



Initial operation, power on, operation display:

For power, two batteries of same type and capacity are necessary. 5-cell NiCd / NiMH or 2-cell Li++ batteries can be used (other cell numbers for modified output voltage). Batteries must be equipped with MPX high current sockets or identical connector system.

If the electrical connections are established, the **DPSI BIC** can be turned on. After turning on and completed initialization (display: “EMCOTEC BIC V2.0”) the used battery type is optically (LC-display) and acoustically (piezo-buzzer) indicated. Thereby:

1 beep	5 cells NiCd / NiMH
2 beeps	6 cells NiCd / NiMH
3 beeps	2 cells LiIon
4 beeps	2 cells LiPo
5 beeps	2 cells LiFePO4
no beep	buzzer deactivated

Afterwards, the voltages of both batteries are displayed and the **DPSI BIC** enters normal operation mode. Using both pushbuttons marked with arrows, different information can be recalled.

If in sequence the ⬇ button is pressed, the values are displayed in the indicated order.

This standard display in normal mode shows the actual voltage of both batteries.

Minimal battery voltage battery 1 since last turn on.

Minimal battery voltage battery 2 since last turn on.

Maximum battery voltage battery 1 since last turn on
(Maximum value 15.20V).

Maximum battery voltage battery 2 since last turn on
(Maximum value 15.20V).

Actual current flow of connected loads. If current rises over 4A, display shows “overload”. It is an error if current rises over approx. 2.0A if servos are idle (defective servo, rough running push-rod, etc.)! (Maximum value of display is 7.00A).

Maximum current since last turn on. This value indicates current peaks, which occur in the system and reaches up to 7.00A. Higher values are displayed as “>7.00A“.

Average current consumption since last turn on. This value should stay below approximately 4A (for LiPo batteries), because this is the maximum continuous current of the **DPSI BIC**. Normally you can assume approximately 1.0A to 1.6A if using 5 servos.

Withdrawn capacity since last reset of memory. This value represents the withdrawn capacity of BOTH batteries! If e.g. using two 2000mAh batteries this value can reach 4000mAh. Display of low voltage occurs much earlier. If rising higher than 9999mAh “>9999mAh“ is being displayed.

Power-on time (flight time) in minutes since last reset of memory. Attention: only whole minutes are saved! If turned off after 1:59, display is 1min after next turn on. If rising over 9999min the value ">9999min" is displayed.

Effective output voltage of the voltage regulator of the **DPSI BIC.** The real value is displayed. Other output voltages can be realized on request.

From here on, the display repeats, i.e. the voltages of the batteries are displayed.

Hint:
If the **DPSI BIC** already indicates a low voltage warning (battery almost empty), but the withdrawn capacity is far below the nominal capacity of the battery, this indicates a bad battery (which is inapplicable for that reason). The internal resistance of that battery is probably too high, i.e. the battery "breaks down" at high loads.
Possibly the batteries are damaged (capacity loss). This can be verified by using a commercially available charger.
It also can mean an error in the mechanics (e.g. constantly rough running push-rods). In this case though, the average current would be high, too

10. Resetting Saved Values

The values for power-on time (flight time in minutes) and withdrawn capacity (in mAh) can be reset. This is usually done after charging the batteries. Because the batteries have full capacity after charging, the **DPSI BIC** counts starting from 0 after resetting of the values.

To reset the saved values push the ⬆ button and turn the **DPSI BIC** on. Press the ⬆ button for approximately 5 seconds.

When the ⬆ button is pressed for 5 seconds during power-on, this display appears. Releasing the ⬆ button causes the next frame to be displayed:

Reset can now be confirmed by the ⬆ button or canceled by pressing the ⬇ button. If none of the buttons are pressed, the **DPSI BIC** changes to normal operating mode after a timeout of 5 seconds.

Confirmation of the resetting of the values. After deleting the values a reset occurs and the **DPSI BIC** starts operation in normal operation mode.

11. Error Messages

The **DPSI BIC** displays error messages on a LC-display in plain text. The error indication alternates with the actual notion (every 5 seconds). The function of the buttons for selection of the view remains available. Errors (except one) are irreversible. This means: an error, once recognized, is displayed until the **DPSI BIC** is turned off, even when the error should disappear.

Errors are also acoustically indicated by a piezo-buzzer. If the external switch (accessory) is connected to the **DPSI BIC**, the central LED of the switch blinks at the same rate as the piezo-buzzer and therefore indicates the error, too.

The following errors can be displayed:

Low voltage battery 1. If the battery is discharged down to about 60% - 70%, this text is displayed. At the same time the error code is beeped by the buzzer every 7 seconds (3 short and one long beep).

Low voltage battery 2. The buzzer sounds now every 7 seconds 3 times short and 2 times long.

Low voltage of both batteries. The buzzer now alternates between the errors for battery 1 and 2.

Missing or defective battery 1 or loose contact in the input lead. At the same time a buzzer signal sounds (2Hz). This error is also indicated until turning off.

Missing or defective battery 2. Due to the constant error indication, even short lasting errors (breaks) can be diagnosed.

If the withdrawn current exceeds 4A, overload is displayed. In this case the buzzer sounds constantly. This indication disappears as soon as the current drops below 4A – this is the only reversible error!

Special Case:

That display appears, if an internal memory overrun in the **DPSI BIC** happens. This only can happen under (theoretical) laboratory conditions and does not point to a malfunction in the **DPSI BIC.**

12. Programming the DPSI BIC

Through simple programming, some of the options of the **DPSI BIC** can be adjusted. That is, besides selection of the displayed language, the programming of the used batteries. Additionally, it is possible to deactivate the integrated piezo-buzzer, in case the acoustical indication of errors should be suppressed.

In order to connect different battery types to the **DPSI BIC**, the low voltage recognition must be adapted to the particular battery type. This is done by programming the battery type.

Battery Type	Battery Nom. Voltage
5 cells NiCd or NiMH	6.0V
6 cells NiCd or NiMH	7.2V
2 cells Lithium Ion (LiIon)	7.2V
2 cells Lithium Polymer (LiPo)	7.4V
2 cells Lithium Iron Phosphate (LiFePO4)	6.6V

Hint:
For the use in air model flights (standard 5.9V output voltage) 5-cell NiCd/NiMH batteries or 2-cell LiPo batteries are recommended!
7-cell NiCd/NiMH batteries or 3-cell Li++ batteries are not permissible with the standard output voltage of 5.9 volts although the DPSI BIC input voltage does allow for this cell number!
6-cell NiCd/NiMH batteries do not make sense for the standard output voltage of 5.9V, because the excessive voltage, in contrast to 5-cell batteries, must be totally converted to heat!

For programming, both ⬆ and the ⬇ buttons are pressed simultaneously and the **DPSI BIC** is turned on. The ⬆ and the ⬇ are pressed for 5 seconds, then programming mode starts, which works like this:

If both arrow buttons are pressed for 5 seconds during turn on, the programming mode starts. Releasing the buttons changes to the next frame in the display:

The notion of the LC-Display can be carried out in German or English. After 2 seconds the display changes to the language selection:

If the display should occur in German language, press the ⬇ button; for the English language press the ⬆ button. If there is no button pressed, the next programming option is started after 5 seconds (without changing the programmed language).

With this menu, the programming of the battery type is initiated. After 2 seconds the display changes:

Pressing the ⬆ button causes the individual battery types to be displayed (5-cells, 6-cells, 2 LiIon, 2 LiPo or 2LiFePO4).

If the appropriate battery type appears in the display, confirm this value by pressing the ⬇ button. If there is no button pressed, the next programming option is started after 5 seconds (without change of the battery type).

The last programming option allows the suppression of the piezo buzzer. After 2 seconds the display changes:

Pressing the ⬆ button turns on the acoustical error indication, pressing the ⬇ button turns it off. If there is no button pressed within 5 seconds, the actual value is unchanged.

When the new values are being saved, this text appears. After saving, a reset occurs and the **DPSI BIC** starts in normal operating mode.

Hint:
Low voltage recognition of 2-cell LiFePO4 batteries is not 100% safe because this battery has a flat voltage curve which drops rapidly near the end of capacity. In this case additionally refer to the capacity display of the DPSI BIC.

13. Safety Instructions

- In general, all connection cables should not be installed in a way that they interfere with moveable or hot parts in the model (e.g. servos, servo wires or mufflers).
- Protect the **DPSI BIC** from wetness and humidity.
- The **DPSI BIC** must have sufficient free space surrounding it to ensure good air flow and heat dissipation of the heat sink.
- Improper usage of the **DPSI BIC** can cause severe property damage or personal injury!
- Always double check all connections in your model before any usage! All connections must be of the correct polarity, have a clean contact and be secured. Loose cables pose a potential hazard!
- Under no circumstances use power sources which exceed the denoted voltages.
- Current leading contacts must not be short cut. Otherwise shorted cables can heat up or even melt.
- The **DPSI BIC** must not, under any circumstances, be taken apart or technically altered. There are no parts at all within the **DPSI BIC** which could be maintained or repaired by the user.
- Do never misuse the **DPSI BIC** for other reasons than for RC modeling in the hobby area. Especially the application in manned machines is specifically prohibited.
- Operate the **DPSI BIC** exclusively with RC components for modeling.
- Always pay attention to fully charged batteries when operating your model. Empty batteries lead inevitably to the breakdown of the RC components and therefore to the loss of the model.
- Do not expose the **DPSI BIC** to extremely hot or cold temperatures, wetness or humidity. Here, there is danger of malfunction, damage or reduced performance.
- Only use our or from us released accessories in connection with the **DPSI BIC** (e.g. on/off switch).

14. Technical Data of the DPSI BIC

Power sources	5, (6)-cell NiCd / NiMH cells, 2-cell Li++-batteries (LiIon, LiPo, LiFePO4)
Operating voltage range	6.0V 16.0V
Nominal input voltage	6.0V 12.6V
Output voltage	5.9V stabilized
Quiescent current (power off)	< 1µA
Quiescent current (power on)	approx. 30mA (without active buzzer)
Max. continuous current @ 5.9V (15min for LiPo batteries)	4A
Max. peak current @ 5.9V (100ms for LiPo batteries)	20A
Drop-Out-Loss @ 1A	approx. 0.5V
CE-Test	according to 2004/108/EC
Environmental conditions (operating)	-10°C .... +50°C
Permissible temperature range	-20°C .... +80°C
Maximum power dissipation (P)	6 Watt ($P = U_{Bat} - 5.9V * I$)
Display range battery voltage	0.1V ... 15.20V (or > 15.20V)
Display range current	0.03A ... 7.00A (or > 7.00A) from I > 4A (actual current) indicates “Overload“
Display range capacity	0mAh ... 9999mAh
Display range flight time	0min ... 9999min
Display of the output voltage	real value (actual value)
Nonvolatile RAM (reset able)	withdrawn capacity, flight-time (power-on time)
Low voltage indication	using “IVM”, intelligent voltage monitoring (irreversible within power-on cycle)
Fault indication by	LC-display (5sec alternation with current display) as well as the integrated buzzer using different beep pattern.
Dimensions (width x height x depth)	104mm x 36mm x 34mm (39mm incl. clamping yoke) 4.1” x 1.42“ x 1.34“ (1.54“ incl. clamping yoke)
Screw diameter for mounting	2x 3.1mm (0.122“) for M3 Screws with stop nut
Hole spacing for fastening	90mm (3.54”)
Mounting cutout	78.5mm x 31.5mm (3.09” x 1.24”)
Weight	approx. 75grams (2.64 oz)
Warranty	24 month

14.1. Measuring Parameters of the DPSI BIC

Voltage display	2% / 1 Digit / resolution 0.1V
Current display	2% / 1 Digit / resolution 0.01A
Capacity display	1% / 1 Digit / resolution 1mAh
Operating time	1% / resolution 1min
Accuracy of output voltage	+/- 0.2% (+/- 110mV @ 5.9V)
Sampling rate A/D converter	1kHz
Peak value acquisition	arithmetic mean over 10msec

Technical modifications and errors reserved!

Hint:
A regular digital voltmeter is much slower in peak value acquisitions than the **DPSI BIC**, current peaks are therefore not recognized by the instrument if they are of very short duration. The extremely fast measurement of the **DPSI BIC** sheds light on the real peak values during short time periods which are reached by the system.

15. Warranty

EMCOTEC GmbH shall issue a 24-month warranty on the "**DPSI BIC**". The guarantee period shall begin with delivery of the equipment by the retailer and shall be not extended by any guarantee repair or guarantee replacement.

During the period of guarantee, the warranty shall cover the repair or replacement of any proven manufacturing or material defects at no charge. There shall be no specific entitlement to repair work. In case of a guarantee claim, the manufacturer shall reserve the right to exchange the equipment for a product of equal value if repair of the item is not feasible for economic reasons. There shall be no assumption of liability for consequential damages that are brought about by a proven defect during operation of the "**DPSI BIC**". There shall be no extended claims for damages.

- All transportation, packaging and travel expenses are the responsibility of the purchaser.
- No liability shall be assumed for any damages during transport.
- If repair is needed, the equipment must be sent to the appropriate service center of the respective country or directly to EMCOTEC GmbH.
- The guarantee shall only be valid when the following conditions are met:

  The guarantee document (original invoice) must include the delivery date, the company stamp, the serial number and signature of the retailer.

  No intervention in the equipment may have been undertaken. It must have been operated in accordance with our operating instructions.

  Only the power sources and other accessory devices and components that were recommended by us may have been used.
- The guarantee document, the original invoice and other pertinent information regarding the malfunction (a short description of the defect) must be included with the transmittal.
- The equipment must still be the property of the initial purchaser.
- If equipment is sent in that later proves to be functional following an initial inspection, we shall impose a flat processing fee of € 15.
- In all other respects, the general business terms and conditions of EMCOTEC embedded controller technologies GmbH shall apply for any items not listed.

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(P) June 2009 Version 2.0
Robert Hussmann www.emcotec.de
www.rc-electronic.com

WEEE-Reg.-Nr.: DE61612258 VerpackV Reg.-Nr.: 143629

Legal Information:

Trademarks:
The following names are registered trademarks:

- EMCOTEC
- DPSI
- DPSI RV

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