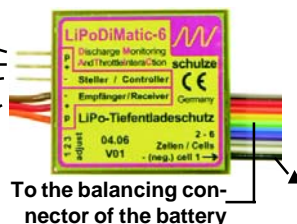


**To the Controller:****p= orange, white****+ = red****- = brown, black****To the Receiver****(p = pulse, signal)****The principle of connection**

(cell arrangement as the storeys in a high-rise building)

- + cell 5 (fifth storey) etc.
- + cell 4 (fourth storey) = - cell 5
- + cell 3 (third storey) = - cell 4
- + cell 2 (second storey) = - cell 3
- + cell 1 (first storey) = - cell 2
- ▲ - cell 1 (ground floor) = earth

Dear customer,

Congratulations on your choice of the LiPoDiMATIC. This product makes it much safer to use Lithium batteries in your model.

Every one of your models which is powered by these expensive batteries really should carry a LiPoDiMATIC; it is as essential a unit as the balancer you always use when charging the Lithium battery.

1 Method of working

The LiPoDiMATIC monitors each individual cell of your flight battery, checking for low voltage.

The LiPoDiMATIC throttles back the motor well before any cell reaches the deep-discharged state - far less reversed polarity. This causes the battery voltage to rise again slightly, thereby avoiding the danger of deep-discharged cells.

If battery voltage continues to fall, the unit finally cuts the motor to avoid a deep-discharge situation.

2 LED indicator

When you initially connect the LiPoDiMATIC to the flight battery, the integral LED flashes to indicate the flight pack's cell count; this continues for a short period (one minute).

If the unit detects low cell voltage during flight operations, the integral LED flashes to indicate the number of the cell in the pack whose voltage was (or is) low.

This indicator goes out one minute after the LiPoDiMATIC receives its last signal from the receiver (receiving system switched off). The indicator can be re-activated by switching the receiving system on again.

3 Installation at the battery end

The LiPoDiMATIC is connected to the balancer lead attached to the flight battery. The LiPoDiMATIC version should be chosen to match the balancer connector:

- LiPoDiMATIC-4 if a Schulze BalCab 10 socket is attached to the battery;
- LiPoDiMATIC-6 if a JST connector (Graupner, Robbe) is attached to the battery.
Any other connector with 2.54 mm pin spacing can also be used - although it may be necessary to re-connect the wires to obtain the correct sequence, or to "fill" vacant contacts.
- LiPoDiMATIC-14 if a Schulze BalCab14 socket is attached to the battery.

4 Installation at the receiver end

The "servo lead" attached to the LiPoDiMATIC should be connected to the throttle channel socket at the receiver.

The "servo lead" attached to the speed controller or governor should be connected to the right-angled 3-pin socket on the unit. Note: the lead must be connected with the negative wires (brown or black) of the two cables facing each other.

If several batteries (several individual packs wired in series, or parallel-wired packs) are to be monitored by LiPoDiMATIC units, then the units must be wired together in series: the servo lead attached to the LiPoDiMATIC is connected to the right-angled three-pin socket on the other LiPoDiMATIC, instead of to the receiver (See wiring sample 3).

5 Speed controller / governor with BEC or opto-coupler

The LiPoDiMATIC works correctly with both types of speed controller (opto-coupler or BEC) without any modification. The conductor cross-section of the "servo lead" attached to the LiPoDiMATIC-4 and -6 is designed for BEC mode operations, while the "servo lead" of the LiPoDiMATIC-7 and -14 is thinner (and therefore lighter), as speed controllers for high cell-counts and / or high currents should have an opto-coupler for reasons of safety.

The right-angled three-pin socket is another very deliberate feature, as the pins of most "servo leads" usually consist of nothing more than sheet metal contacts, which cannot cope with heavy currents.

**6 Requirements / Warning**

The LiPoDiMATIC can only work if your speed controller works with a shorter pulse signal (from the receiver or transmitter) at "motor stopped" or "brake on" than at "full-throttle". If this is not the case, the unit would apply full-throttle to the motor as the battery became flat, instead of reducing motor speed and thereby reducing current drain.

Auch die 3-polige abgewinkelte Stiftleiste ist ganz bewußt eingebaut worden, da die Stifte in den Servokabel-Kupplungen meist nur aus gewinkeltem Blech bestehen und dadurch nicht so hoch belastbar sind.

7 Adjustments / Matching

The LiPoDiMATIC can be configured to react to low cell voltage in different ways, making it suitable for various types of application.

It is possible to select the voltage limits to provide for different residual motor run times. You can also set up the unit so that the motor generates a "battery almost flat" signal to alert the pilot.

7.1 Voltage limit values / Solder pad configurations

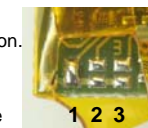
The voltage limit values are dictated by the state of the solder pads 1 and 2:

Throttle reduction at 2.5 Volts Pad 1 soldered, pad 2 open = pure cell protection function. When the unit reduces the throttle, the battery is flat, i.e. no motor run time remaining.

Throttle reduction at 2.8 Volts Pad 1 open, pad 2 soldered = Selection for saving some final run time. Setting for cells which are operated at the limit of their maximum load capacity.

Throttle reduction at 3.1 Volts Pad 1 open, pad 2 open = (default state) This setting provides an energy reserve of about one airfield circuit at reduced throttle.

Throttle reduction at 3.3 Volts Pad 1 soldered, pad 2 soldered = Setting for cells which are discharged at low currents compared to the maximum permissible load.



1, 2, 3
1 = soldered
2,3 = open

7.2 Throttle reduction behaviour / Solder pad configurations

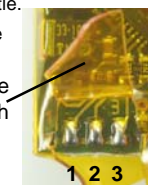
7.2.1 Linear throttle reduction when the voltage of the most deeply discharged cell falls to the set limit. The motor is continuously throttled back until it stops.

Recommended applications: gliders, helicopters.
Configuration: pad 3 = open

7.2.2 Staged throttle reduction when the voltage of the most deeply discharged cell falls to the set limit. When a cell first falls to the low voltage limit, the unit forces a distinct reduction in throttle, with the aim of warning the pilot that the battery will soon be flat, and that he should initiate the landing. Thereafter the unit permits a maximum throttle setting of around 85% of the value which has been used up to now. This causes the battery voltage to rise again slightly.

If the voltage again falls below the low voltage limit, the unit reduces the throttle setting again.

Recommended application: fixed-wing sports model aircraft, boats
Configuration: pad 3 = soldered



1, 2, 3
all soldered

8 Special notes

- Disconnect the controller / governor from the Lithium flight battery when not in use (to avoid deep-discharging the battery).
- The LiPoDiMATIC should not be left connected to the battery for days on end, as the voltage divider (used to measure the cell voltages) will slowly discharge and unbalance the pack.
- The throttle reduction and display function is reset when the LiPoDiMATIC is disconnected from the Lithium battery (i.e. when you change batteries).

9 Specification

Type	Range	Connector	Weight	Current (sleeping - in use)
LiPoDiMATIC-4	2 - 4 LiPo	Schulze BalCab 10	16 g	0.12 - 1.2 mA
LiPoDiMATIC-6	2 - 6 LiPo	Universal 7-pin, 2.54 mm pin spacing	15 g	0.12 - 1.5 mA
LiPoDiMATIC-7	2 - 7 LiPo	Schulze BalCab20	17g	0,12 - 1,5 mA
LiPoDiMATIC-14	2 - 14 LiPo	Schulze BalCab 20	21 g	1 - 3 mA





rechts / right

LiPoDiMATIC-14 mit BalCab20 Stecker
für 5s - 14s Packs
LiPoDiMATIC-14 w. BalCab20 plug
for 5s - 14s packs



Ohne Abb. / No picture

LiPoDiMATIC-7 mit BalCab20 Stecker
für 2s - 7s Packs
LiPoDiMATIC-7 w. BalCab20 plug
for 2s - 7s packs



Zum Steller / To the controller

Impuls / pulse (signal)
Plus / pos.
Minus / neg.

Zum Empfänger
To the receiver



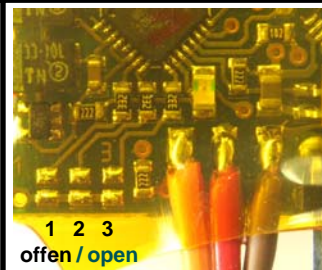
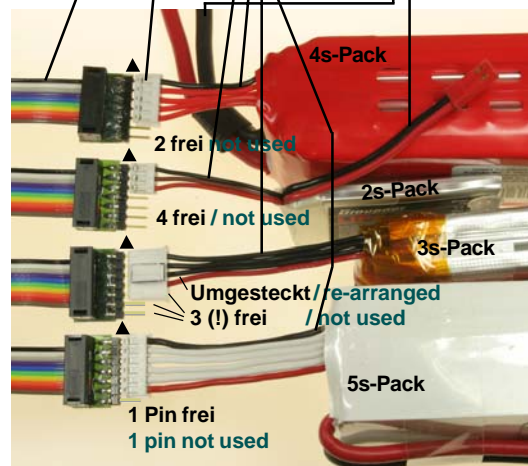
unten / below

LiPoDiMATIC-6 mit Universal-Stecker für 2s-6s Packs
LiPoDiMATIC-6 with universal plug for 2s - 6s packs

Achtung: Die Anschlussbuchsen (weiblich) des Balancer-Kabels müssen evtl. umbelegt werden um die Hochhaus-Konfiguration (Seite 1 rechts oben) zu erhalten.

Caution: It may be necessary to re-arrange the female sockets of the balancer cable in order to obtain the cell arrangement as shown at the top of page 1 („high rise building“).

▲ = schwarz = Pin1 = „-“ Zelle 1 = „-“ Akku
= black = Pin1 = neg. cell 1 = neg. battery



1 2 3
offen / open

Löt-Pads im Auslieferungszustand
Solder pads at delivery state

LiPoDiMATIC-4 mit BalCab10 Stecker
für 2s - 4s Packs



LiPoDiMATIC-4 with BalCab10-
plug for 2s - 4s packs

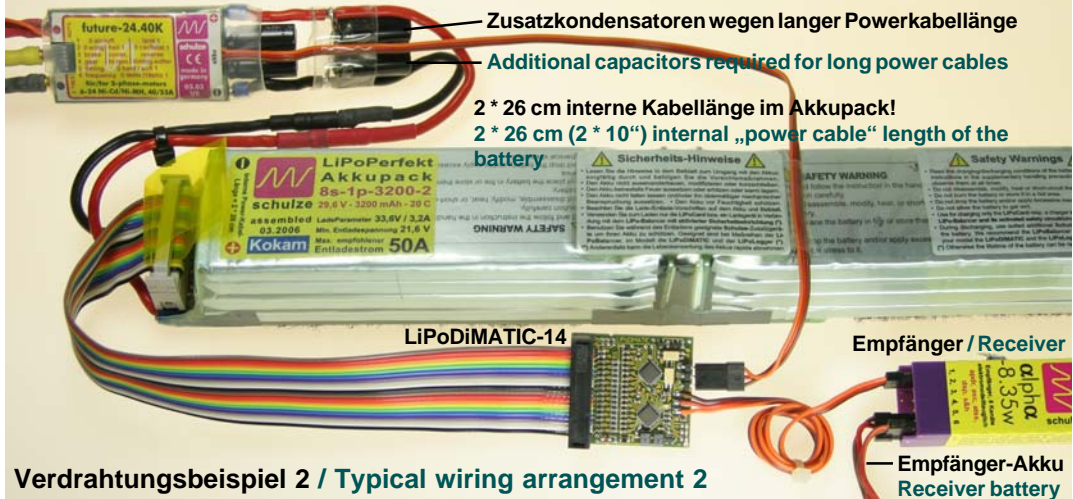


Verdrahtungsbeispiel 1 / Typical wiring arrangement 1

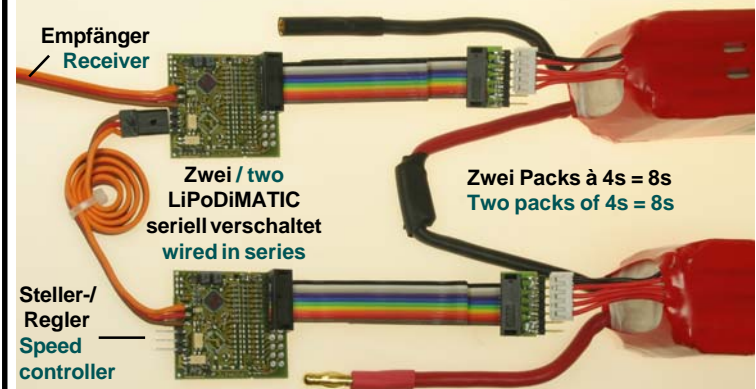
Drehzahlsteller/-regler mit Optokoppler / Speed controller with opto-coupler

Zusatzkondensatoren wegen langer Powerkabelänge
Additional capacitors required for long power cables

2 * 26 cm interne Kabellänge im Akkupack!
2 * 26 cm (2 * 10“) internal „power cable“ length of the battery



Verdrahtungsbeispiel 2 / Typical wiring arrangement 2



Verdrahtungsbeispiel 3 / Typical wiring arrangement 3