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## 1. Introduction

The intelligent RC Data logger UniLog is for all those model flight pilots among you, that would like to know things more accurately. Because with the help of the UniLog voltage, current, power, capacity, number of revolutions, temperature and height in a model airplane are measured, stored and later easily evaluated with our UniDisplay or UniTest 2 directly on site or at the PC and/or laptop.

With the UniLog the behavior of an electric drive in flight can be analyzed very simply and on the basis the results the individual components can be optimally co-ordinated. By means of the adjustable memory rate of 16 measurements per second up to a measurement every 10 seconds, both short high starts and long thermal flights can be meaningfully evaluated. The organization of the flight into individual flight phases (data records) makes a separate analysis possible of different flight situations e.g. climb or descending flight.

The UniLog is operated simply either at the ground with the integrated button and the three indicator LEDs or in the air by the transmitter. The model does not have to be specially landed thus, in order to take up a new series of measurements.

Using our Unidisplay or UniTest 2 all measured values of the UniLog can be picked out and viewed directly at the airfield. Likewise the minimum and maximum values of the last series of measurements can be read off. Also a live-measurement is possible with the display. All settings, e.g. the memory rate, can be seen and changed using the display programme.

The evaluation of the data is made simple by a program integrated in Excel. This can be downloaded at any time, in the most up to date version free of charge, from our homepage under [www.sm-modellbau.de](http://www.sm-modellbau.de).

The measured values can be represented in a simple manner individually or also arbitrarily with one another in graphical diagrams. But a clear "control window" was programmed, with which also changes to settings on the UniLog over the PC can be accomplished.

Whether glider, aerobatics machine, helicopter, HLG or Slowflyer, the UniLog can be used in all due to its small weight and the compact size. Naturally the UniLog is not only suitable for flying models. It can be built likewise into RC boats, RC car etc.. Within all these there is the same interest in a complete drive.

You have acquired a universal RC Data logger efficient in all aspects, which uses all advantages of modern electronics. With the UniLog, you have a small aid giving a large help in handling your RC models.

## 2. What the UniLog can do:

- Complete measurement of electric drives with current -, voltage -, power -, capacity -, number of revolutions and temperature measurement (number of revolutions and temperature with additional sensors) .
- Altitude of 0 - 4000 m over NN with automatic zeroing after switching on.
- Current measuring range depending upon attached sensor to 400 A, voltage to 60 V.

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- Current and voltage from the receiver can be plugged in (by which it operates as pure altimeter e.g. in Sailplane very small and simple).
- Universal connections for external number of revolutions sensor (part number 2210 or 2211) and up to three temperature sensors (part number 2220).
- Connection for speed sensor (part number 2560) for the measurement of airspeeds
- Recording of the internal temperature.
- Recording of the Receiver battery voltage.
- Recording of a servo impulse of the receiver.
- Enormous internal data memory for nearly 26000 measuring data sets Memory rates of 16 measurements per second to 1 measurement every 10 seconds make one recording duration possible from approximately 30 minutes to 90 days..
- Current supply automatically by receiver or flight battery.
- Start of the recording triggered by timing, current threshold or receiver impulse.
- Manual recording start by integral button.
- Current status is signaled by three LEDs.
- Direct viewing of the measured values, live or recorded, with our Unidisplay or UniTest 2.
- Parameter settings over PC and Unidisplay or UniTest 2 possible.
- Evaluation is made by a program integrated in Excel. The appropriate program is available free of charge on our homepage [www.sm-modellbau.de](http://www.sm-modellbau.de).
- Support by the LogView software [www.logview.info](http://www.logview.info) LogView is a very extensive and interpretative program which can be used on the PC and supports many different measuring devices and battery chargers used in the model construction world.
- Simple and descriptive evaluation of the results of measurement by diagrams at the PC.
- Free software updates are possible by PC with the help of the provided USB interface cable (software is available on the InterNet under [www.sm-modellbau.de](http://www.sm-modellbau.de) in the menu option "software updates").
- Due to its compact size and the small weight almost everywhere applicable

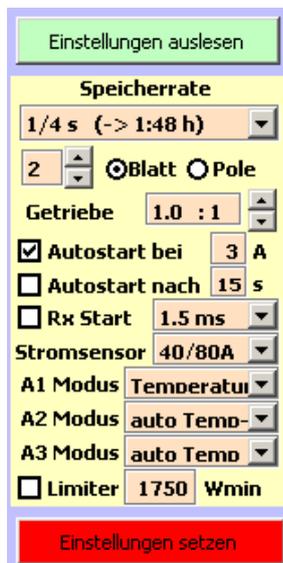
### 3. Technical Data

Current supply	from Receiver battery (starting from 3,5 V) or directly over the current and voltage sensor from the motor battery.)
current measuring range	depending upon sensor 20 A, 40 A, 80 A, 150 A or 400 A
tension measuring range:	0 to 60 V
Altitude measuring range	0 to 4000 m NN, when switching on receiver height measurement is zeroed automatically
Receiver battery voltage range	3.5 V to 10 V
external connections	1 combined current and voltage sensor 1 number of revolutions sensor (optical or magnetic) 3 temperature sensor (- 40 °C to + 125 °C) 1 servo impulse of the receiver 1 servo impulse exit
dimensions	37 x 22 x 10 mm
mass	UniLog: 6 g current sensors: approx.. 7 g to 18 g

## 4. Settings options:

The settings of the UniLog can be made alternatively by Excel software at the PC and/or laptop or with our Unidisplay.

In the Excel software a program window controls the selection of the data, the representation in diagrams, and the settings of the UniLog. To connect with the PC simply put the USB interface cable in the COM port of the UniLog and in the PC. The UniLog is supplied automatically from the PC with current. The UniLog does not need to be removed from the model. All attached sensors can remain attached.



The following parameters can be given thereby for the measurement:

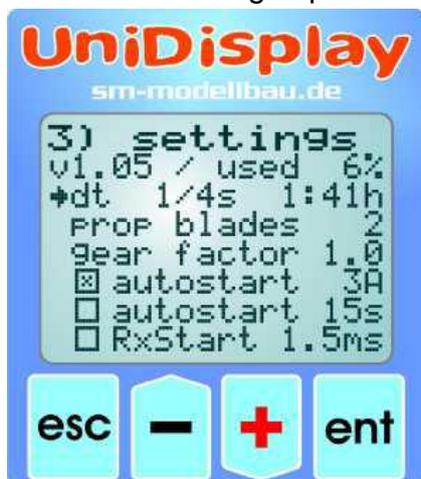
- Desired memory rate from 1/16 s to 10 s (the approximate recording duration is indicated behind it).
- Number of propeller blades for the speed measurement or motor poles for the brushless rpm sensor.
- Gear ratio for the brushless rpm sensor (should be set at 1 for optical/magnetic measurement)
- Recording start with ...: Exceeding the given current threshold
- ... Expiration of given time after switching on.
- .....Servo impulses with indicated pulse width.
- Selection of the attached current sensor.
- Selection of the sensor at A1 connection.
- selection of the sensor at the A2 connection and/or

the value

- selection of the sensor at the A3 connection and/or the value
- Limiter mode and value in Wmin for the limit. This option is intended only for use in competitions! In the Limiter mode the memory rate is automatically set to 1/16 s and the memory is cleared with each startup (only the last flight is in the memory).

To change the settings you must always click on "Einstellungen setzen" at the end. Only then are the values transferred to the UniLog.

The same settings options result also when using the UniDisplay.



Here first with "plus" and "minus" buttons the desired menu option is selected with the cursor, and activated with "Enter" ("plus" and "minus" at the same time) and then the values adjusted. With repeated pressure on "Enter" or "Esc" the settings are taken over.

## 5. Operation of the UniLog.

### 5.1 meaning of the LED

The UniLog has three colored LEDs and a button. By depressing the button or with automatic start the recording can be started and stopped.

- After switching on of the supply the LEDs light up to show the internal initialization is on.
- Subsequently, the orange LED signals the current allocation of the data memory in 10 % steps (Two times flashing means for example that approx. 20 % of the memory is already used up).
- Afterwards the red LED flashes until about 15 seconds passed after switching on (warming up).
- As soon as the red LED shines continuously, the UniLog is ready.
- During the recording the green LED flashes according to the adjusted memory rate.
- If the recording is stopped, again the red LED shines continuously.

### 5.2. Start and stop of the recording

The UniLog possess several possibilities of starting the recording of the data. With each start the UniLog begins a new data record. Each data record has its own number and in Excel under this number is later addressed. The UniLog can administer up to 30 data records. A data record is thus e.g. a complete flight. During the next flight the recording is again started and thus begins also a new data record.

The recording of the data can be started in the following way:

- With manual depressing the key as soon as the UniLog is ready (red LED shines continuously) the recording is started and also again stopped.
- With exceeding of the adjustable current threshold. If the "autostart for current" is activated, the recording begins automatically as soon as the selected current is exceeded. So also can the recording be started when starting of an electrical model
- At expiration of the adjustable time. If the "autostart for time" is activated, the recording begins automatically as soon as the selected time passes after the start. Thus doesn't one have to care for pressing the key, the recording in each case starts itself.
- With remote controlling signal (servo impulse). If the option "RX start" is activated, the recording starts as soon as the impulse crosses the threshold adjusted by the receiver. If the impulse is again underneath this threshold, then the recording stops again. Thus the recording of the UniLog can be steered by the transmitter with a two speed switch via a free channel. The switch must be defined only in such a way that it shifts up and down the free channel from -100% direction (recording stop) to +100% direction (recording start). The value 1.5 ms corresponds to the central position of most current remote controls. For special applications the asynchronous operation threshold can be adjusted also from 1,1 ms to 1.9 ms.  
The value "Rx an" starts the recording as soon as the UniLog receives a receiver impulse. Thus one can start the recording as soon as the receiver is switched on, e.g. in competition models in which the motor battery is connected first,

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The autostart options "time" and "current" can be active at the same time, whichever occurs first starts the recording. If the option "RX start" is active, the recording can be only started over the receiver impulse (or the button). "Time" and "current" are then ignored.

In each case the recording should be stopped before disconnecting the UniLog, since only that way are the minimum and maximum values stored for use with the Unidisplay.

### 5.3 deletion of the memory

The memory of the UniLog can be deleted either over the Unidisplay or also via the Excel software. Alternatively the memory is also cleared, if the UniLog is switched on with pressed key and this is only released after the lighting up of all LEDs (approx. after 5 s). Thus the memory can be put back also without external aids. The memory can still be selected again, however, and is only finally deleted with the next start of a recording. Like that the data are not yet lost after an inadvertent deletion.

## 6. Connection Examples

in the following you are shown some typical interconnects for the UniLog in the model.

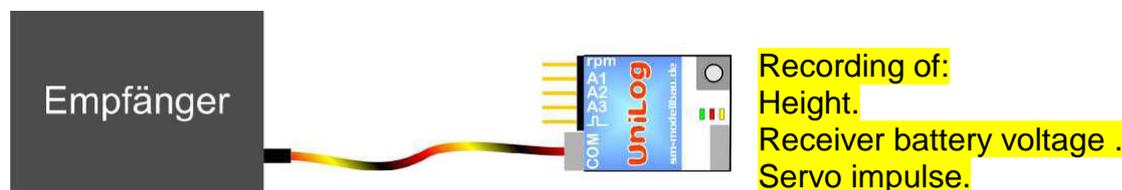
### 6.1. Only altitude e.g. in the F3B/F3J Segler or also HLG

For altitude only just the UniLog with the provided lead for the receiver is necessary. Together the altitude logger thereby weighs only 8 g.

At the UniLog the "RX" cable, is attached to the connector under the "COM" connection, and at the receiver with a free servo location. The UniLog is supplied thereby from the receiver with current.



Depending upon settings the recording can be started and stopped by transmitters (with activated RX start). In addition at the transmitter a switch is defined, which operates the receiver channel used.



## 6.2. Electric drive measurement without connection to the receiver

For the simple measurement of an electric drive in addition to the UniLog you need one of the different current and voltage sensors. These sensors are available for different currents and with different plug systems

Part number	plug system	max. Current	max. Voltage	Resistance	mass
2510/2530	2mm gold	-10A,+40A	60v	1 mOhm	7g
2511/2531	4mm gold	-10A,+80A	60v	1 mOhm	14g
2512	MPX green	-10A,+80A	60v	1 mOhm	11g
2532	Deans Ultra	-10A,+80A	60v	1 mOhm	12g
2513/2533	4mm gold	-20A,+150A	60v	0.5 mOhm	14g
2514/2534	5.5 mm gold	-20A,+150A	60v	0.5 mOhm	15g
2515/2535	3.5 mm gold	-10A,+80A	60v	1 mOhm	11g
2516/2536	6 mm gold LMT	-20A,+150A	60v	0.5 mOhm	15g
2517/2537	6 mm gold LMT	-50A,+400A	60v	0.25 mOhm	18g
2523	Receiver current sensor GPN/FUT	-5A,+20A	10v	4 mOhm	9g

When switching on of the UniLog the current zero point is calibrated. The current flowing at that time is thus set as 0 value.

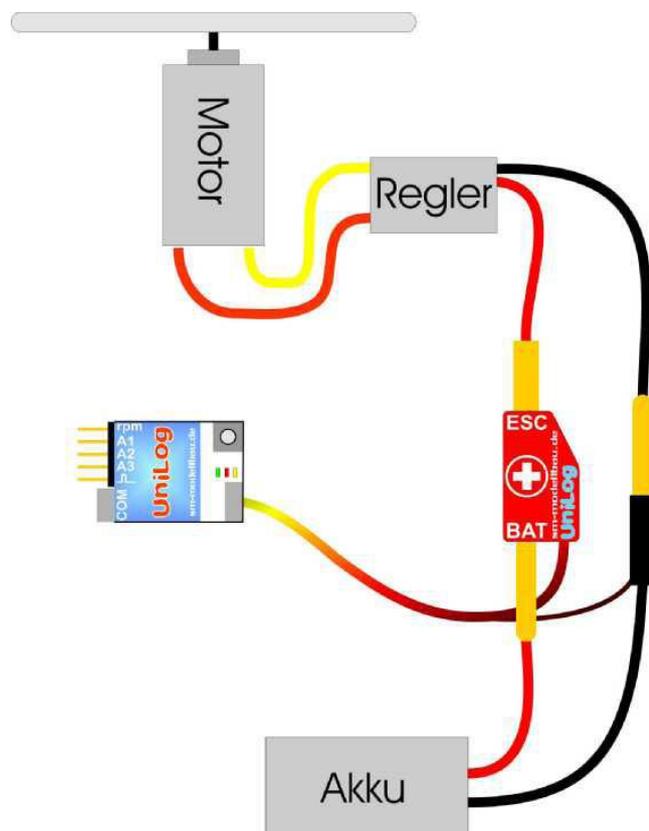
In this interconnection set up the UniLog is supplied with voltage from the current sensor. The current sensor is attached simply with the 5 pole plug to the location beside the key. The current sensor is eingeschleift (*activated?*) with both plugs in the plus and negative conductor of the battery.

Recording of:

Voltage  
Current  
Capacity  
Height

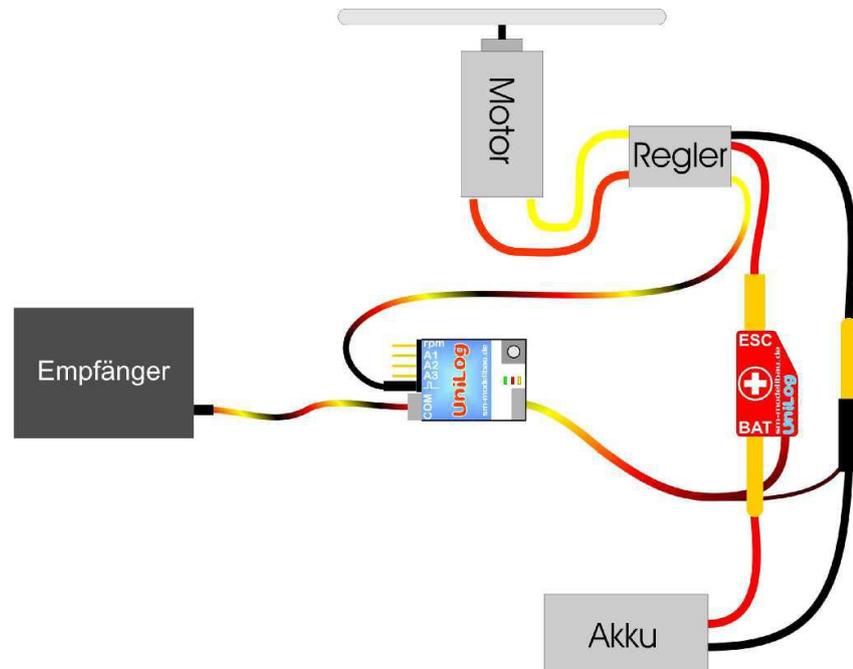
The battery must never be reverse polarized! The UniLog could be destroyed thereby!

The connection "BAT" must be connected to the Battery and the connection "ESC" must be connected to the controller.



### 6.3. Limiter for F5B/F5D/F5F

With the use as a Limiter in the competition classes F5B/F5D/F5F the drive is switched off when the energy quantity set in the UniLog is consumed. The receiver signal must be passed through the UniLog so it can be modified before passing to the automatic controller. The signal is read, recorded by the UniLog, and sent on to the automatic controller.



Recording of of:

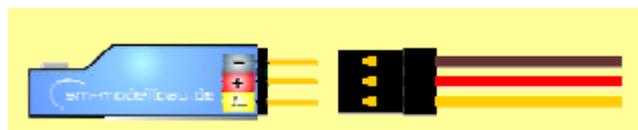
Voltage  
Current  
Height  
Capacity

Receiver impulse

Receiver battery voltage (not with opto coupler cable)

As a lead to the receiver, either the simple cable connection part number 2520 can be used (as is supplied with the UniLog), or for galvanic separation between receivers and drive the opto coupler cable part number. 2521.

For passing through the impulse, the automatic controller is put in the connection with the impulse symbol at the UniLog.



on the UniLog connector locations.

The negative conductor of the control cable is connected in the same polarity as for the temperature and number of revolutions sensors above in the label

#### **6.4. Connection of sensors at A1 to A3**

Up to three temperature sensors and an rpm can be attached and recorded by the UniLog. For example the temperatures of accumulator, engine and automatic controller can be recorded at the same time. Our temperature sensor with magnet (stock no. 2220), which is also used with the UniTest 2, can be used. The measuring range goes from - 40 °C to + 125 °C. Similar sensors can be attached at socket locations marked by „A1 “, „A2 “and „A3. In place of a temperature sensor also the speed sensor can be attached at A1. In addition all three locations can be used for your own purposes and the voltage recorded directly in mV

In order to save storage location, the inputs “A1 “,“A2 “and “A3 “are recorded in place of other data. You must select in the settings which value under “A1” is to be stored, also ”A2 “and “A3 “

. Settings possibilities:

- A1:
  - temperature sensor
  - tension in mV (measuring range is 0 to 1500 mVs)
  - speed sensor to 250 km/h
  - speed sensor to 450 km/h
- A2:
  - temperature sensor or receiver impulse (selected automatically)
  - tension in mV (measuring range is 0 to 1500 mVs)
  - capacity in mAh
- A3:
  - temperature sensor or internal temperature (selected automatically) ◦ energy in Wmin
  - tension in mV (measuring range is 0 to 1500 mVs)

#### **6.5 Connection of a revolutions sensor**

As a number of revolutions sensor, all the sensors also for the Unitest 2 can be used. Those are the optical sensor stock no. 2210, the magnetic sensor stock no. 2211 or the Brushless number of revolutions sensor stock no. 2213.

The values of the number of revolutions sensor are noted automatically, if a sensor is connected at the outside card location labelled "RPM".

In the Setup of the UniLog the correct number of measuring impulses per revolution must be given for the correct speed measurement. With the optical and magnetic sensor that is the number of the propeller blades and/or magnets. With the Brushless revolutions sensor that is the number of motor poles. A classical in-runner like e.g. a Lehner or a hacker motor has 2 poles. An out-runner has usually 10 or 14 poles. Additionally the gear ratio can be given. If used with a direct drive in-runner the number of propeller revolutions is thus measured with the Brushless revolutions sensor, a gearbox can also be taken into consideration. Therefore you get the actual propeller number of revolutions.

If the number of revolutions is based directly at the propeller externally (optical sensor at the propeller or magnetic sensor at the spinner), the gear ratio should be set on 1,0:1.

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### Connection of the Brushless of number of revolutions sensor (stock no. 2213):

The sensor is attached by the soldered on 2 mm gold plug to one of the three motor phases. Thus a connection to one of the three lines between automatic controllers and motor must be made. Note that the 2mm socket can be soldered directly to the controller cable or be attached remotely with a thin cable (no current flows here) .

The rpm measurement functions only if at the same time the UniLog has a connection to the drive via the current sensor.

## 7. Use of the UniDisplay

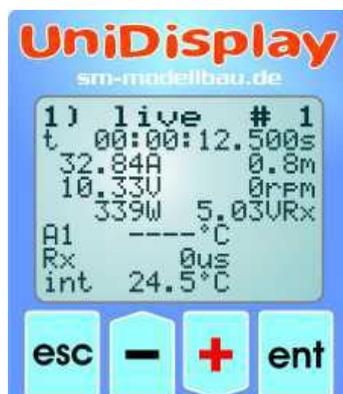
For the connection of the UniLog the newest software-Version must always be used in the UniDisplay, otherwise not all functions are possibly available. An update for the UniDisplay can be downloaded free of charge from our homepage ([www.sm-modellbau.de](http://www.sm-modellbau.de)).

UniLog and UniDisplay are connected using the cable provided with the display. The outlet is in the upper left of the UniDisplay, and is connected to the UniLog with the port marked "COM". The connection cable can be connected either way, it does not matter which end is in the display. The display is supplied from the UniLog with current and switches itself on automatically, as soon as the UniLog is switched on. The display can be attached at any time to the UniLog. The UniLog must be supplied with current either via the external current sensor or via the receiver and the receiver lead.

In no case should the UniLog be supplied via the pin row for the external sensors (A1 to A3, and RPM) with current. Thus the UniLog could be destroyed.



**Menu:** First the menu is activated. Navigate with the "plus" and "minus" keys to find the appropriate the menu options, and select with "Enter" ("plus" and "minus" at the same time).



**Live data display:** Here all current measured values are indicated. With a pressure on "pluses" the recording can be started, and be stopped with "minus" again. Top right after the # is the current recording number. Also there is the elapsed time and the measured values.

"VRx" is the measured receiver battery voltage.

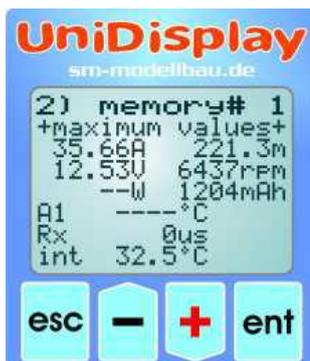
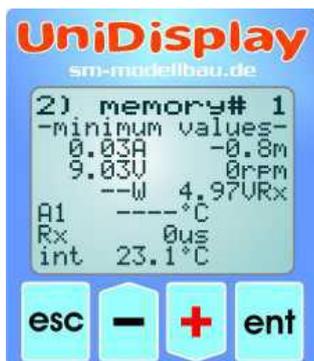
If a temperature sensor is attached at "a2" instead of the receiver impulse "Rx" the temperature is indicated as "A2" and also stored. Likewise If a temperature sensor is attached at "A3" instead of the internal temperature "int" the

temperature "A3" is indicated and stored.



### Large Display:

With a long pressure on "Enter" the display can be switched to the large display. A value in the lower half of the display in large writing is represented. With "Enter" the large display can be changed between all measured values. Further long pressure on "Enter" changes again back into the normal display. The large display is also available with the data memory display (show DATA).



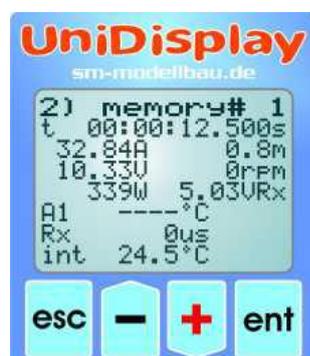
### Data memories indicate (show DATA):

Here memory contents of the UniLog for a fast overview can be seen. With "pluses" and "minus" one navigates through the data.

First the minimum and the maximum values of the data record are always displayed in two screens. In this way one can quickly determine the maximum current consumption of a drive without

having to evaluate large amounts of data.

With the data record showing maximum values the total used capacity is shown in mAh in place of the receiver voltage (VRx).

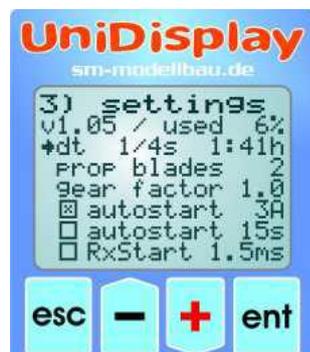


The entire memory can be paged through with "pluses" and "minus".

With a single press of the key you move an individual value, with a longer press of the key you continuously leaf through faster.

With a pressure on "Enter" you always arrive at the beginning of the next data record. The current record number is indicated top right after the #.

With "Esc" you go back to the menu.



### Settings:

Here all settings of the UniLog are made.

The specification is under chapter 4.

In addition in the second line the firmware version of the UniLog and the current storage allocation in % are indicated.

### Memory deletes (CLEAR memory):

With a long pressure on "Enter" the memory of the UniLog is cleared here.

The memory can still be selected again, however with the next start of a recording it is deleted.

In this way the data are not yet lost after an inadvertent deletion.



## 8. Connection to the Unitest 2

For the connection of the UniLog to the Unitest 2 the newest software version is necessary. An update for the Unitest 2 can be downloaded free of charge of our homepage ([www.sm-modellbau.de](http://www.sm-modellbau.de)).

For programming and for the display of data the UniLog is attached over the lead (part number of 2305, identically to the INFO. SWITCH cables) to the lower serial interface of the Unitest 2 (serial 2 COM). Additionally the UniLog must be still be supplied with current, either with the Rx cable from the Unitest 2, or the receiver fitted in the model, or by a current.

On the Unitest 2, the menu option "9 SM interfaces" should be found and the UniLog selected. As soon as the connection is established the Unitest 2 sounds a beep and the display indicates the menu for the UniLog.

```
1)live      ****
2 show data * Uni *
3 settings  * Lo9 *
4 clear memo ****
```

### Menu:

First the menu is activated.

Navigate with the "pluses" and "minus" keys to find the menu options, then the appropriate point can be selected with "Enter".

The other screens and settings are to a large extent identical to those further described above as for the UniDisplay.

## 9. Telemetry Operation

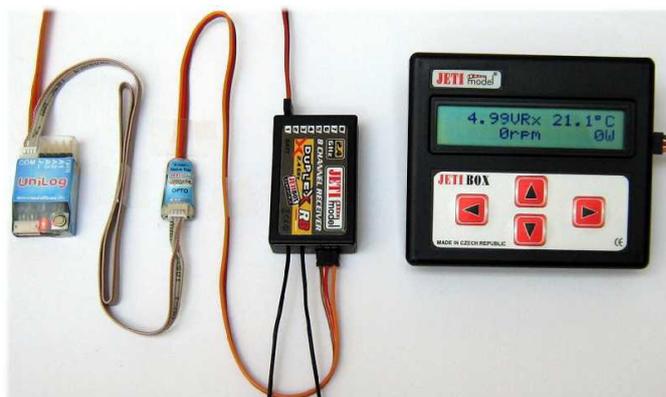
Many current 2.4GHz remote control systems now offer the possibility of model data being transmitted back to the transmitter. These systems are of course ideal to send measured data from the UniLog to the ground for live display, while of course still recording it on the UniLog for later evaluation.

The UniLog currently supports the systems of Jeti Duplex, Multiplex M-Link, and Graupner HoTT.

### 9.1. Telemetry with Jeti duplex 2.4 GHz

All that is needed is an installed Jeti duplex system and the cable connection stock no. 2555 (with opto coupler) or the cable connection stock no. 2556 (without opto couplers). These cables feed the data from the Jeti duplex receiver. At the UniLog the cable connection is made to the COM Interface, and at the Jeti duplex receivers the other end is attached to the data socket (marking Ext.)

At the ground the data is shown as with the Jeti sensors over the JetiBox.



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< - Mx  
v

At the Jeti Box after the start the sensors attached by Tx over Rx are changed to Mx.

SM UniLog for  
Jeti Duplex

Pressing the **down** key opens the display of the UniLog data. During the initialization of the UniLog the starting screen comes, afterwards directly the measuring data are indicated. Here the different options can be changed with the **right** and **left** keys. A pressure on the **up** key starts the recording of the data in the UniLog, which is indicated by a flashing star and an acoustic signal. A further pressure again terminates the recording. Back to the selection Tx, Rx and MX go it with a long pressure on **up**.

\*23.28vV  
87.5m

5.01VRx      22.9°C  
2481rpm      839W

A3      44.9°C

A1      .....°C  
Rx      1782us

A further depressing the **down** key leads to the settings. First can be selected with both the **left** and **right** keys the desired value, then with a depressing the **down** key the value is activated and adjusted also on the **left** and **right** keys. If one presses the **up** and **down** keys at the same time, the alarm changes between ON and OFF.

< Current Alarm >  
100A      OFF

< Start Volt min >  
10.0V      OFF

< Volt min >  
10.V      OFF

< Clear Memory >  
press up + down

< Height Alarm >  
100m      OFF

< Capacity Alarm >  
2000mAh      ON

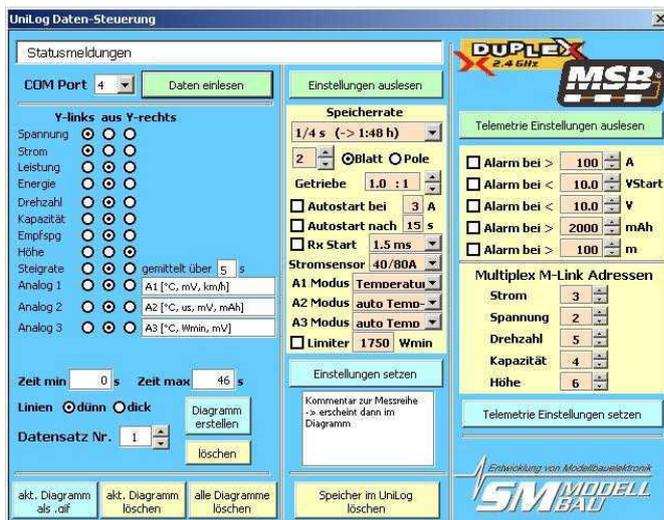
There are alarms for a maximum current, a minimum starting voltage, a minimum voltage, the maximum capacity and the maximum height. With the minimum starting voltage an inadvertently attached but uncharged battery can be recognized, the maximum capacity permits the accurate ending of a flight at the desired value without inaccurate timing systems. The alarms become acoustic by the transmitter module of the Jeti duplex system and additionally are also indicated on the JetiBox.

## 9.2. Telemetry with Multiplex M-Link

All that is needed is an installed Multiplex M-link system and the cable connection stock no. 2556. This cable feeds the data into the M-link receiver. At the UniLog the cable connection is made to the COM Interface and the Rx connection, with the M-link receivers the connection is made to the data socket (sensor identification).



On the ground the data is displayed directly on the Multiplex Royal Pro or COCKPIT SX transmitters.



The settings for the telemetry are made with the current Excel software. Here for each possible alarm a threshold can be set, and the alarm activated with the checkmark. The addresses for the display on the Multiplex system (the line that the value is shown on), can be freely selected. The two addresses 0 and 1 are reserved for the receiver voltage and the signal strength.

### 9.3. Telemetry with Graupner HoTT

With the firmware update, it is necessary from this version to pre-select the desired telemetry. In the update either "Jeti Duplex and M-Link" or "HoTT" can be chosen, It is always supplied with Jeti Duplex / Multiplex M-Link telemetry.

All that is necessary, therefore, is a HoTT system and the connection cable part no. 2556. This cable feeds the data into the HoTT receivers. On UniLog plug the connection cable into the COM interface and the Rx input, at the HoTT receiver the opposite end is connected to the data port "T". There are two operating modes of telemetry supported on the SMART-BOX, the text mode and the direct digital mode (graphical display).



```
SM UniLog via HoTT <
#01 * t 00:00:12s
motor 123.45A 23.45U
      12345W 123456rpm
capacity 12345mAh
alt. 1234.5m 5.08URx
i ----°C Rx 1500us
int 24.5°C
```

The **text mode** is reached via "Settings and Data view" of the SMART-BOX, then using the right button move further to the UniLog Screen. The UniLog must be ready, the red LED should not be blinking. In this display all measured data of the UniLog appears in a screen.

A pressure on the button "DEC" or "INC" starts the recording of data in the UniLog which is indicated by a blinking star and an acoustic signal. Another push on "DEC" or "INC" also ends the recording again.

The **digital mode** is reached via "Model Select" → "Airplane" → "Receive+General/GAS". As long as the data recording in UniLog is running the "ON" symbol flashes in the top left.

- BATT1 is the Rx voltage
- BATT2 is an optional speed sensor in A1, the decimal point must then be read (18.4 = 184 km / hr)
- FUEL shows the battery capacity based on the set alarm threshold in 5 levels.
- CURRENT and POWER-V are the drive values
- TMP 1 is an optional temperature sensor in A2
- TMP 2 is the internal temperature of the UniLog
- On the second page the rpm is shown in the unoccupied cell voltage.



There are telemetry alarms for a maximum current, a minimum starting voltage, a minimum voltage, the maximum capacity and the maximum height. With the minimum starting voltage an uncharged battery accidentally connected can be detected, the maximum capacity allows flying to the desired value without inaccurate and cumbersome timers. The alarms are acoustically issued by the SMART-BOX and also shown in the display.

Alarms will be reported only when the text mode or digital mode of UniLog is active.

## 10. Evaluation with the Excel program

With the provided USB interface and our free Excel Programme all settings of the UniLog can be changed, the data memories of the UniLog be selected, and diagrams easily produced from the data.

### 10.1. Installation USB interface and connection at the UniLog

Please load the necessary driver for the USB-interface from our homepages in the area "Software updates". Follow the instructions in the .pdf file to install the driver.

For the selection of the data the USB interface is simply plugged in at the COM port of the UniLog and at the PC. The UniLog is supplied automatically from the PC with current. The UniLog does not have to be removed from the model. All sensors can remain attached.

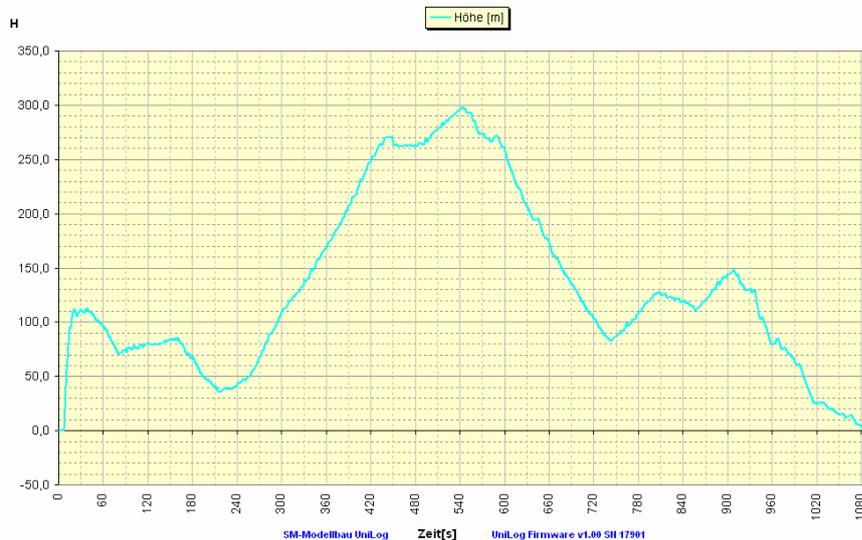
### 10.2. Use of the Excel of program

At least Excel 2000 or higher is necessary, so that the program functions correctly. Before the use of the Excel software you ensure the security settings - macro security in Excel under extras - options – are set to low or average, and when opening the file activate the macros, so that the software functions.

The Excel program has three worksheets of "values", "Instructions" and "version history".

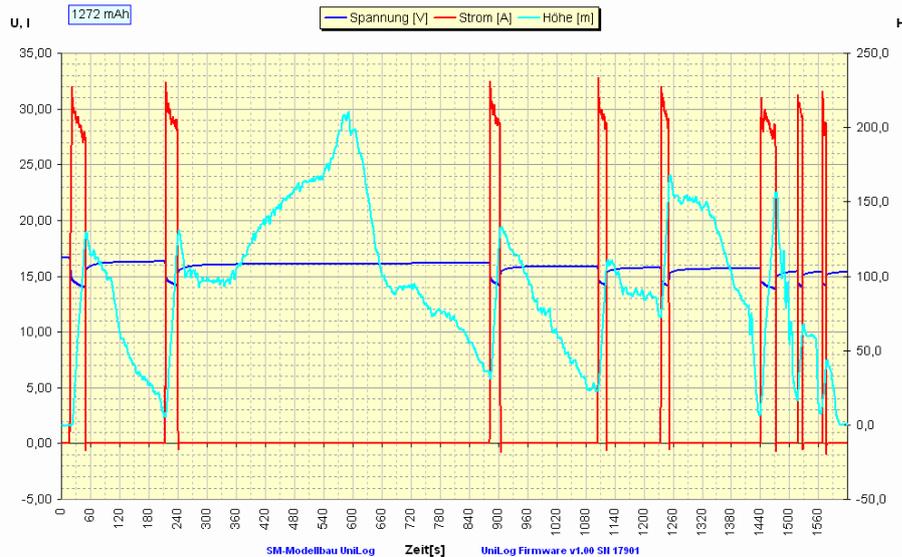
"Instructions" contains a short description of the software and its use. Reading the data in, and the evaluation in diagrams, are controlled completely by the top menu option " UniLog → Steuerung anzeigen" beside the question mark in the menu border.

The evaluation of a flight with a F3J Segler can look then with few Mouse clicks e.g. in such a way:



Translated by R.Whitehead 27-1-2014. (My best effort - accuracy is not guaranteed.)

A flight with a Elektrosegler e.g. so:



## 11. Software update of the UniLog



With the enclosed USB interface a software update can be uploaded onto the UniLog. To make an update, a Windows PC with USB interface and installed driver for the USB interface is necessary. In each case of improvements in our software, an appropriate file with the update is made available free of charge on our homepage within the section software updates. The zip file must, after downloading, be first unpacked. Afterwards the exe program is started. Further steps are described directly in the software.

As of firmware update at 1:16 the telemetry system which should be supported by the UniLog must be chosen. The update can therefore be chosen for either "Jeti Duplex and M-Link" or HoTT.

## 12 Version History

Here you find all software conditions and the changes to the previous versions. You can find the UniLog software version on the Excel spreadsheet or on the UniDisplay.

Version number	date	remark
1.01	12.2006	sales start
1.02	01.2007	1st small improvements
1.03	05.2007	<ol style="list-style-type: none"> <li>1. Guidance for connection with Unitest 2 starting from software v1.18 inserted.</li> <li>2. Support for 20 A and 400 A current sensor</li> <li>3. Active RX start can be started or stopped by key</li> <li>4 A1 recording as temperature or mVs selectable</li> <li>5. Dynamic calibration of the current zero point when switching on.</li> </ol>
1.04	08.2007	<ol style="list-style-type: none"> <li>1. Support for speed sensor inserted.</li> <li>2. New function recording start with "Rx on"</li> </ol>
1.05	10.2007	<ol style="list-style-type: none"> <li>1. Support for Brushless revolutions sensor inserted e.g. engine Poles and gear ratio can be entered</li> <li>2. improvements with the measurement of very low numbers of revolutions</li> </ol>
1.06	11.2007	<ol style="list-style-type: none"> <li>1. Errors during the current measurement with the 400 A sensor corrected.</li> </ol>
1.08	04.2009	<ol style="list-style-type: none"> <li>1. Limiter for F5B/F and F5D competition added</li> <li>2. A2 recording now selectable: Temperature, Rx impulse, mV or capacity (mAh)</li> <li>3. A3 recording now selectable: Temperature, temperature internally, mV or energy (Wmin)</li> <li>4. longer memory rates for long-term recordings adjustable: è 30s, 1min, 2min, 5min</li> <li>5. Error during the internal temperature measurement corrects</li> </ol>
1.10	06.2009	<ol style="list-style-type: none"> <li>1. Telemetry over Jeti duplex added</li> <li>2. Error for Limiters with Futaba receivers repaired.</li> <li>3. Due to changes in the firmware it is necessary to delete the memory after loading this firmware.</li> </ol>
1.11	09.2009	<ol style="list-style-type: none"> <li>1. Adjustment to current hardware, otherwise identically to v1.10.</li> </ol>
1.12	06.2010	<ol style="list-style-type: none"> <li>1. Telemetry over multiplex M-link inserted</li> </ol>

		<p>2. with Jeti duplex an alarm for the minimum voltage can now be set.</p> <p>3. during very long recordings an overflow of the time fixed.</p> <p>4. Due to changes in the firmware it is necessary to reset again all settings after loading this firmware! If a firmware &lt; before; v1.11 was previously used the memory must also be deleted.</p>
1.13	06.2010	<p>1. Alarms for Jeti duplex are set now as with M-link (ON/OFF and the alarm value are separate)</p> <p>2. Errors with the current alarm with Jeti duplex repaired.</p>
1.14	09.2010	<p>1. Errors in time measurement repaired, which led to the capacity and energy sometimes being wrongly indicated in v1.12 and v1.13.</p>
1.15	10.2010	<p>1. M-link errors during the transmission of the capacity repaired.</p>
1.16	03.2011	<p>1. Telemetry operation over Graupner HoTT added.</p>
1.17	05.2011	<p>1. Adjustments for HoTT version V3</p>
1.18	08.2011	<p>1. Adaption for GPS-Logger firmware v1.04</p>