

# Sensor MUI



Assignment of the MUI sensor is measurement of voltage, current and consumed capacity of flight batteries in the model. The wireless data transmission by the DUPLEX 2,4GHz system is monitored by the JETIBOX terminal.

For communication purposes the Duplex system takes advantage of the 2,4 GHz band, which besides sending remote control data to the model also receives data from the model back to the transmitter. During flight obtained telemetric data are transmitted in real time and the actual values of the measured data can be displayed on the JETIBOX LCD. Telemetric MUI sensors execute voltage and current measurements in your model and transmit these informations with the aid of the DUPLEX system (receivers and transmitter modules). Thanks to exact current measurements these sensors render it possible to trace the spent capacity of the measured battery. The MUI unit is recording the spent current flow time and its average as well as maximum value. Furthermore it offers exact voltage measurements and recordings of voltage minimum and maximum values. The task of parameter adjustment and measured data setup is performed by the well known around talent – the JETIBOX terminal.

MUI sensors allow setting of acoustical signals in order to announce violation of set parameters. Such alarms may be set for measurements of maximum current and minimum voltage as well as for a maximum of consumed battery capacity. The sound signal is generated by a siren integrated in the transmitter module. For better differentiation are the particular alarms distinguished by Morse alphabetic letters. The acoustical alarm generation in case of parameter violation is working even if the JETIBOX is not connected. With the JETIBOX in place the LCD display shows which parameter has been violated. In case of violation of several parameters the alerts alter consecutively as well as the indications on the LCD display.

Technical Data	MUI 30	MUI 50	MUI 75	MUI 150
Dimensions	20 x 16,5 x 5 mm	27 x 19 x 11 mm	27 x 19 x 11 mm	27 x 19 x 11 mm
Weight	10 g	19 g	21 g	25 g
Range of measured voltage	0 – 60 V	0 – 60 V	0 – 60 V	0 – 60 V
Range of measured current	0 – 30 A	0 – 50 A	0 – 75 A	0 – 150 A
Accuracy of voltage measurement	0,1 %	0,1 %	0,1 %	0,1 %
Accuracy of current measurement	1 %	1 %	1 %	1 %
Operation temperature	- 10 to + 85° C	- 10 to + 85° C	- 10 to + 85° C	- 10 to + 85° C
Supply voltage	5 – 8,4V	5 – 8,4V	5 – 8,4V	5 – 8,4V
Sensor internal consumption	24 mA	32 mA	32 mA	32 mA

## Connection of the MUI Sensor: (see figures on page 4)

1. The triple cable with JR connector can be connected directly to the JETIBOX (the connector marked Pulse, + - ). Connect to the other JETIBOX input marked by (+ - ) the power supply voltage of 5-8,4V. This connection mode does not take advantage of wireless data transmission, measured data are shown directly on the JETIBOX LCD display. This mode does not allow acoustic alarm generation because the siren is a part of the transmitter module which is not connected in this case. Alarms are only shown on the LCD display.
2. Connect the MUI sensor triple cable with JR connector to the DUPLEX receiver socket (marked Ext.) on the receiver back side. For parameter setup connect the JETIBOX to the transmitter module. The MUI sensor gets its power supply from the receiver.
3. Connect the MUI sensor triple cable with JR connector to one of the EXPANDER inputs. The expander renders it possible to connect several telemetric sensors to a single receiver. In this case the MUI sensor gets its power supply from the Expander and the Expander from the receiver.

# Sensor MUI

## Connection of the MUI Sensor: (see figure on page 3)

There are two inputs available at the MUI sensor, one for current measurement purposes (marked A) and the other one for connection of the measured voltage (marked V).

The current must pass through the MUI, it is therefore necessary to connect it in series with the current supply (battery). If the current polarity is reversed the sensor will show instead of the real current value just 0 A. In that case reverse the current measurement input wires. Do not forget to use proper connectors with sufficient load capacity for current measurements. For currents up to 30A we recommend G3,5 connectors, up to 75A G4 connectors and up to 150A G5,5 connectors or even better.

Connect the measured voltage in parallel to the measuring cables of the MUI sensor. Connect plus polarity to the red cable and minus polarity to the black cable. Watch the correct polarity of the applied voltage. Due to the high resistance of the measured voltage input the connector quality is not very important, but we nevertheless recommend good quality connectors with reverse polarity protection.

## Menu of the telemetric MUI Sensor:

Take advantage of the JETIBOX for parameter adjustment and data readout. After connection to the MUI sensor the sensor identification is shown and in the second line the preadjusted actual measured data. By pushing the push button D (downward arrow) of the JETIBOX you will enter the MUI sensor menu.

**SENSOR MENU: Actual Value** – by pushing D (downward arrow) you will select the display of actual measured values

*Volt / Current* – displays actual measured voltage and the current passing through the sensor. By simultaneously pushing arrows R and L (right and left) the zero value of the sensor current is calibrated. To the actual measured current value the zero current display is added, i. e. the so called zero shift.

*Capacity* – shows the actual consumed capacity

*Run Time* – shows the total time of current passage through the sensor. Included is also the time when the current has exceeded the adjusted current value *Start Trigger* in the *Setting menu*.

**SENSOR MENU: MIN / MAX** – by pushing the button D (downward arrow) you will select the display of extreme voltage and current value recordings which occurred during the measurement. The extreme recordings are deleted automatically or they can be deleted in the menu *Setting - Erase Data*. Automatic deletion occurs when the MUI sensor has just been connected to the voltage supply and the current, as set in the menu *Setting-Start Trigger*, will be exceeded. If after connection of the sensor the set current will not be exceeded, values of the previous sensor operation will be displayed.

*U MIN / MAX* – shows the minimum and maximum value of the measured voltage

*I AVG / MAX* – shows the average value of the measured current and its maximum

**SENSOR MENU: Setting** – by pushing the button D (downward arrow) you will enter the basic sensor setup menu

*Start Trigger* – setup of a current value, at which after sensor connection recording of values like minimum, maximum and current transit time starts. If the adjusted value is 0 A, values will be recorded immediately after connection of the sensor to its power supply and data read out of the previous operation will not be possible.

*Erase Data* – by pushing arrows R and L (right and left) simultaneously the records of measured parameters will be deleted

*First Parametr* – adjustment of the display of the first parameter in the JETIBOX LCD, which is shown in the second line of the basic sensor menu (the first line shows the identification, for instance SENSOR MUI 30)

# Sensor MUI

*Second Parametr* - adjustment of the display of the second parameter in the JETIBOX LCD, which is shown in the second line of the basic sensor menu (the first line shows the identification, for instance SENSOR MUI 30)

**SENSOR MENU: ALARMS** – by pushing button D (downward arrow) you enter setup of particular alarms.

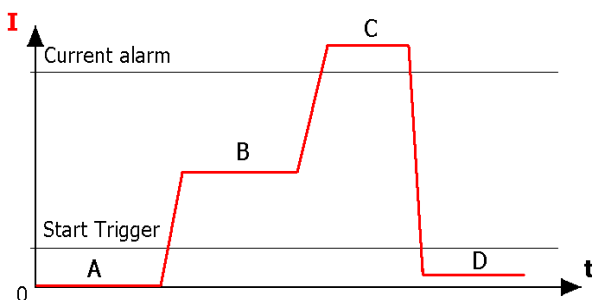
If one of the adjusted parameters becomes exceeded, the JETIBOX LCD will in the second line of the basic menu alternately show the original display with the pertinent alarm and the transmitter module siren will emit an acoustical alarm. The first tone is a revelation signal and the second one is signalling a Morse Code character of the relevant alarm. If the alarm is set to OFF, this kind of alarm will be switched off.

*Voltage alarm* – (alarm U . . - ) adjustment of the value of voltage signalling, if the measured voltage decreases beyond the set value, the voltage alarm U will be activated.

*Current alarm* – (alarm I . . ) adjustment of the value of current signalling, if the measured current increases beyond the set value, the current alarm I will be activated.

*Capacity alarm* – (alarm C - . - ) adjustment of the signalling value of consumed capacity , if the adjusted value of maximum consumed capacity is exceeded, alarm C will be activated.

Particular phases of current measurements:



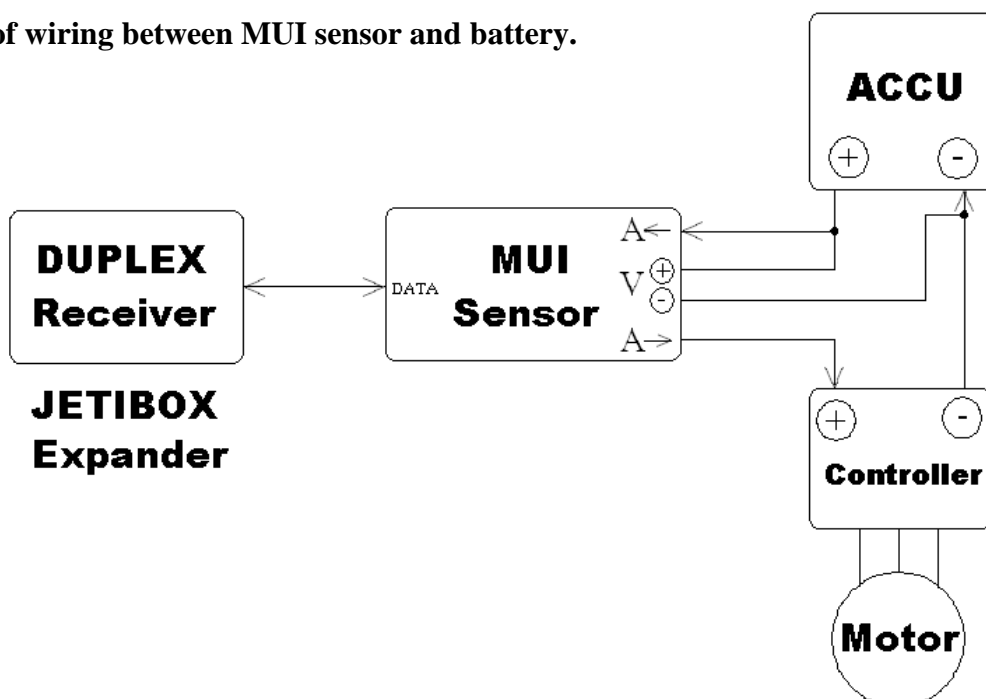
**A** – when after switching on of the sensor the current did not exceed the set value *Start Trigger*. Measured values (*U MIN / MAX, I AVG / MAX, Capacity, Run Time*) correspond with measured values of the previous operation.

**B** – the value *Start Trigger* has been exceeded. Previous measured values (*U MIN / MAX, I AVG / MAX, Capacity, Run Time*) will be deleted and actualized by the actual measurement course.

**C** – the set current has been exceeded and current alarm has been activated

**D** – the measured current decreased beyond the set alarm value, alarm will be cut off. The measured current decreased beyond the set level *Start Trigger*. The timer *Run Time* is switched off. Recording of extremes and consumed capacity is going on.

**Example of wiring between MUI sensor and battery.**



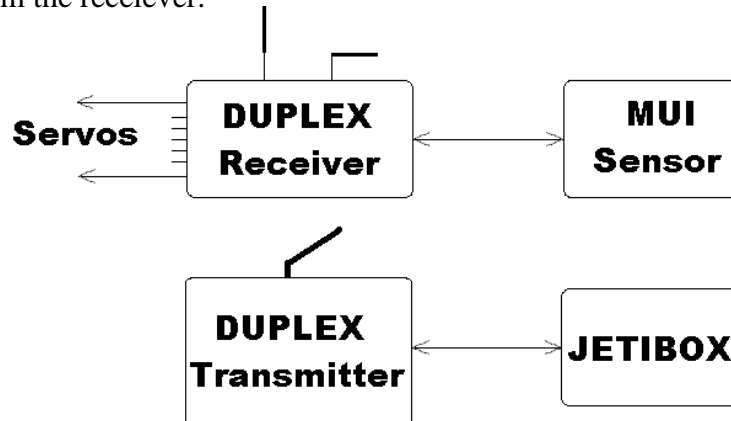
# Sensor MUI

## Wiring alternatives of the MUI sensor:

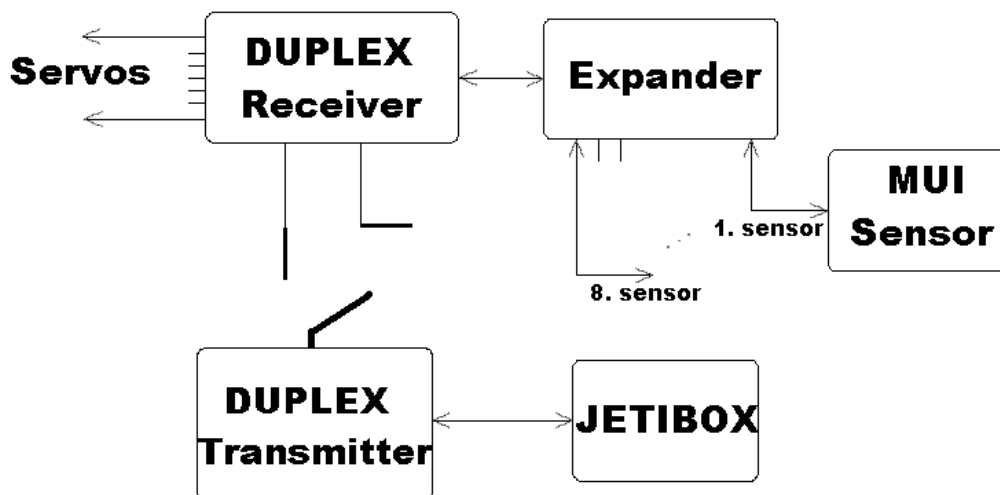
1. **directly to the JETIBOX.** Here it is necessary to use a voltage supply 5 to 8,4V, for instance a receiver battery.



2. **directly to the receiver input (Ext.).** Here only one sensor can be connected. The sensor gets its supply from the receiver.



3. **via the Expander (Ex.).** Here it is possible to work up data of several sensors simultaneously (depending of the type of Expander). The sensor gets its supply from the Expander.



We grant a warranty of 24 months from the day of purchase under the assumption that they have been operated in conformity with these instructions at recommended voltages and that they were not damaged mechanically. Warranty and post warranty service is provided by the manufacturer.

We wish you successful flying with the products of : JETI model s.r.o. Příbor, [www.jetimodel.cz](http://www.jetimodel.cz)

# Sensor MUI

MUI Sensor Menu as shown by the JETIBOX LCD:

