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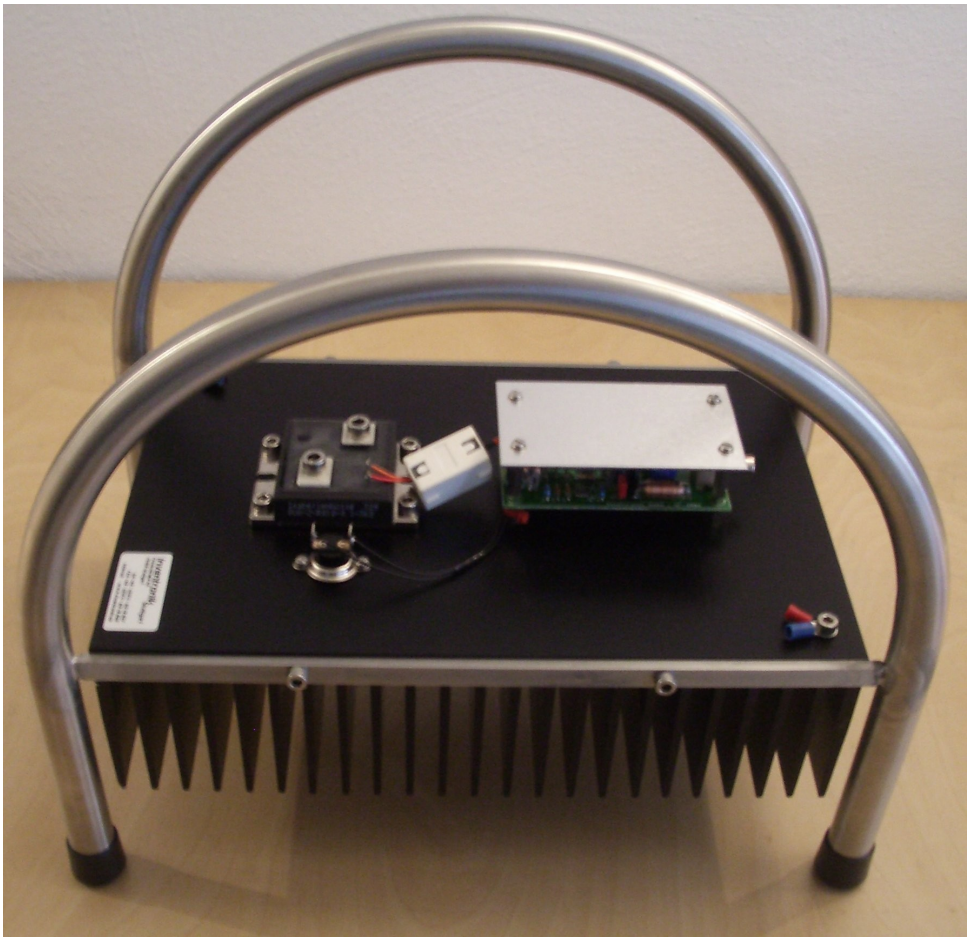
Viplax Shunt-100A

Operation Manual



Viplax Shunt-100A

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History

Issue	*Date*	*Reason For Changes*
01	20060424	Initial issue

References

[1]

Introduction

Ladies and Gentlemen,

Thank you for purchasing this Viplax accessory from Inventronik GmbH. With the purchase of this product you have acquired a high-quality current measurement sensor. Please read this user manual completely before start-up. Inventronik GmbH is endeavored to keep the most current information concerning our products at your disposal. On our website (www.inventronik.de) the newest documents are available for you to download.

Safety Restrictions

Inventronik GmbH is proud to supply you with a high-quality device, nevertheless we cannot guarantee that this module works under all possible conditions without failure. Do not use this product in applications, where damage in the module could lead to direct danger for humans, e.g. medical systems, protection devices and such.

Inventronik GmbH cannot be held in any way responsible for general or specific damages caused by abuse or misuse of our products.

Shipping List

A standard set of Viplax-I transmission systems consists of the following components:

- 1 Shunt.
- 1 Cable with LEMO-0B type connectors (5 pin) for the connection to a Viplax-Ie Card type transmitter.
- Documentation

Technical Description

The Shunt-100A current sensor consists of a high precision power resistor mounted on a heatsink. The shunt is connected to a preamplifier which is provided with a compensation and protection circuit. This device must be supplied with a voltage of ±15V through the Viplax eCard transmitter module. Additionally the shunt is equipped with a temperature switch on the heatsink for supervision purposes. The power resistor has 'Kelvin' contacts to minimize effects from parasitic inductances. The very low inductance of the resistor element itself is actively compensated. There is a potentiometer on the electronic module, as shown in the figure below to recalibrate the shunt. Two corona profiles are foreseen to operate the shunt even with very high electric potentials.

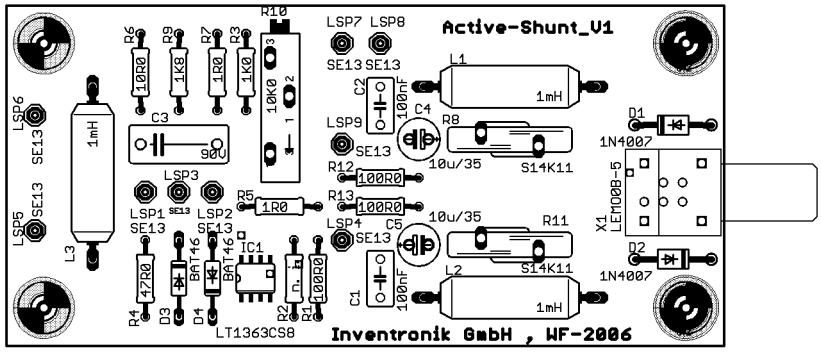


figure 1: Shunt Preamplifier: the Calibration is done with R10

Preparing the operation

The Shunt-100A is ready to use. To operate with Viplax-I, just connect it with the cable that is included. For this purpose, please use the input plug of the eCard transmitter. There are two screws with contact points at the corners of the heatsink. Connect the shunt to a defined electric potential. Be aware, that ground potential of the electronic circuit is **not** connected to PE (protection earth). Make sure, that the difference between the ground and PE does not exceed 50V.

Recalibration

Calibrate the shunt with the Potentiometer R10 on the electronic module so that rectangular signals are transmitted without over- or undershoots. The calibration procedure is similar to standard oscilloscope probes. **Pay attention not to calibrate the electronics when there is dangerous voltage connected to the shunt.**

Sensor Plug

Besides the analog output the plug is equipped with a digital thermo output signal and a supply voltage of +/-15V (provided by the eCard). The connector is Lemo 0B-5. Figure 2 shows the front view of the female plug.

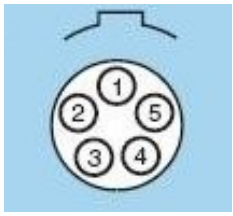


figure 2: Lemo 0B-5

Pin 1	***Analog output***
Pin 2	***Digtal output***
Pin 3	***+15V***
Pin 4	***Gnd***
Pin 5	***-15V***

Table 1: *Front view on the female plug.*

Technical Data:

-Shunt:

Resistance:	10m
Tolerance:	0.1 %
Temperature coefficient:	3ppm
Power dissipation:	100 W

-Electronic Module:

Gain factor:	Adjusted to 1.0
Power supply:	±15V
Supply current:	< 20mA.
Protection:	Spark gap, Varistor and Diodes

-Temperature switch:

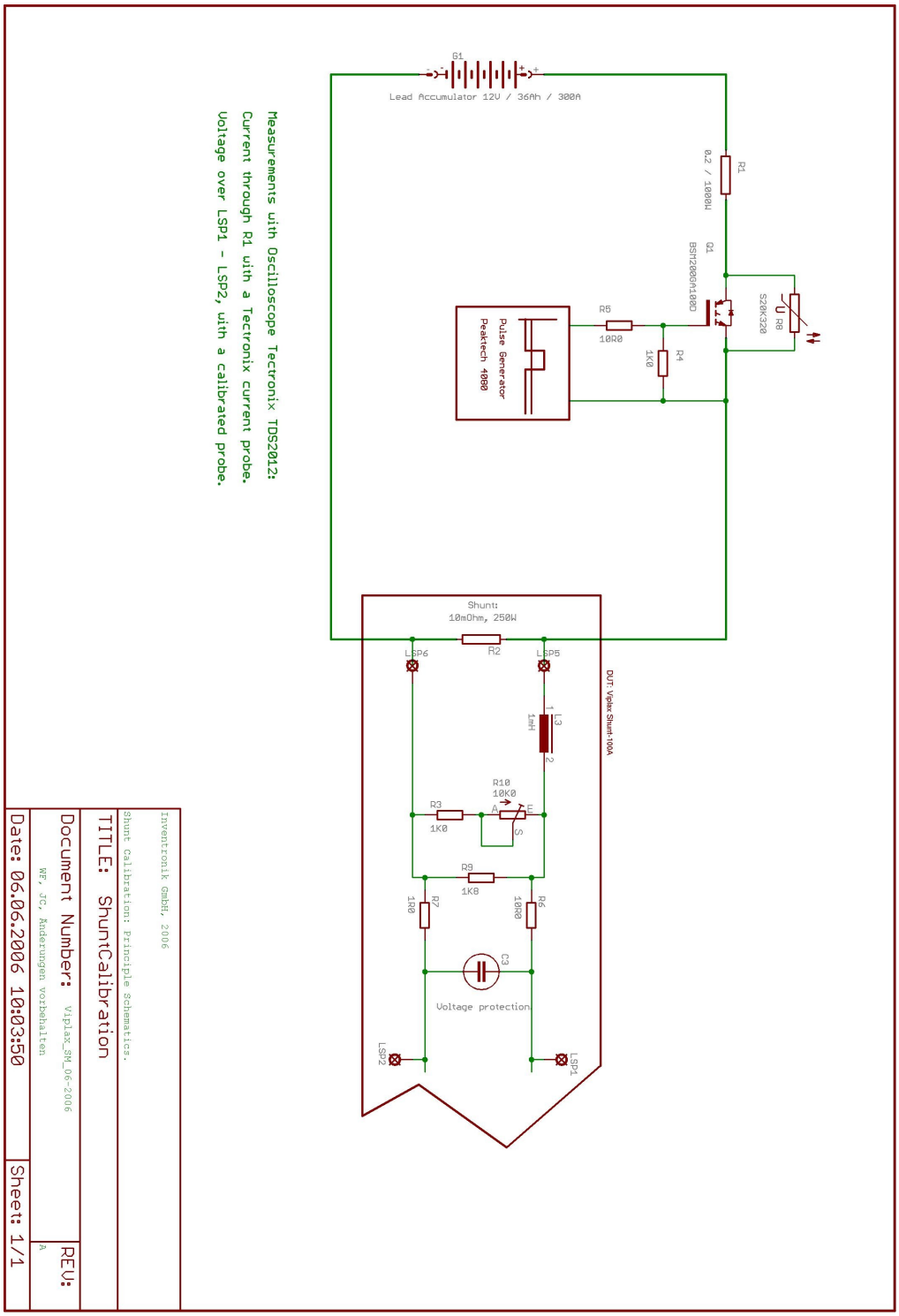
Threshold:	75°C
Contact:	Normally cosed

-Physical Appearance:

H x W x D:	400mm x 300mm x 200mm
Weight:	about 8.5kg

Test Procedure

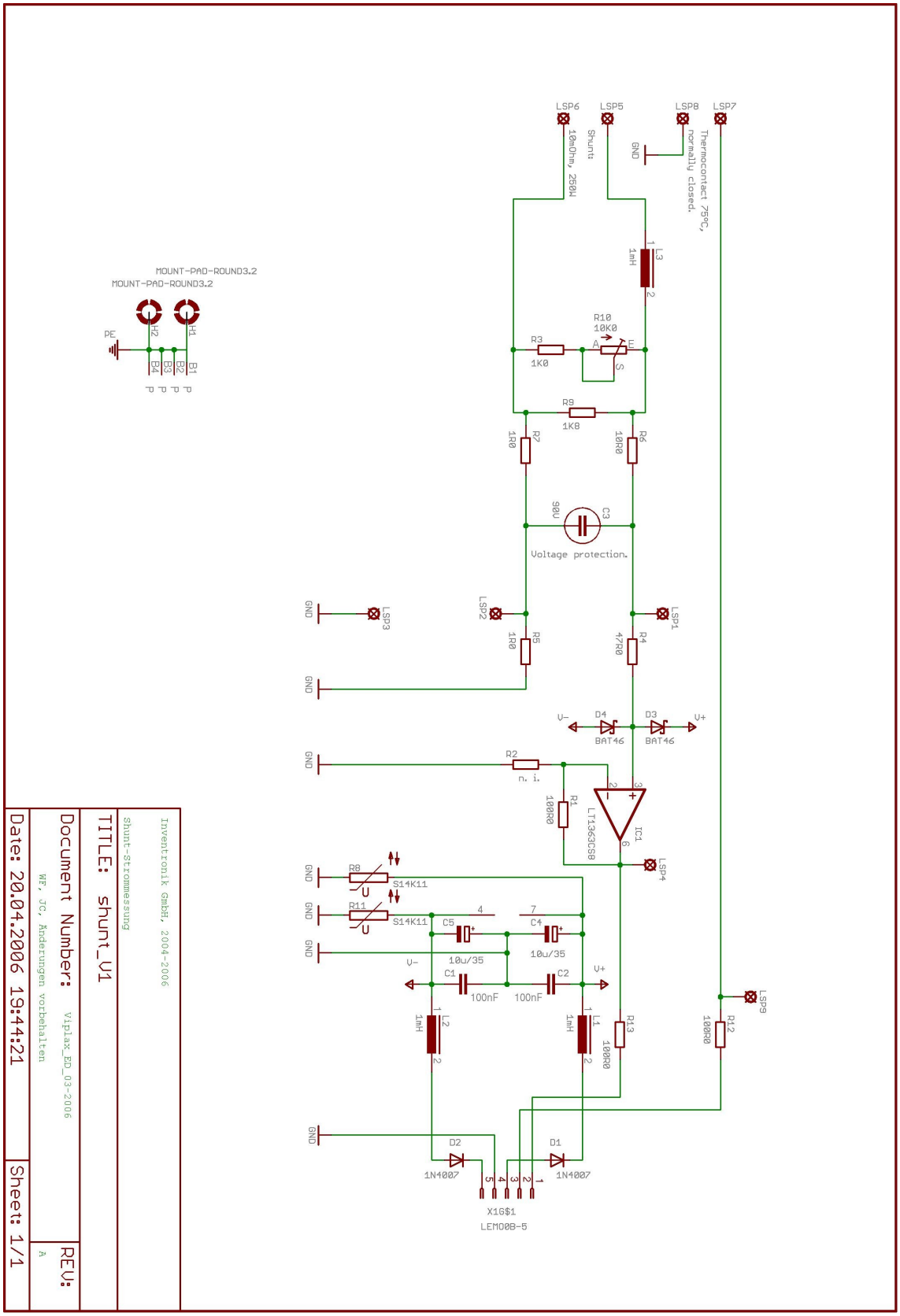
The shunt is equipped with a calibration network. The calibration adjustment is done with the potentiometer R10. The following figure gives an impression of how the shunt is calibrated at the factory.



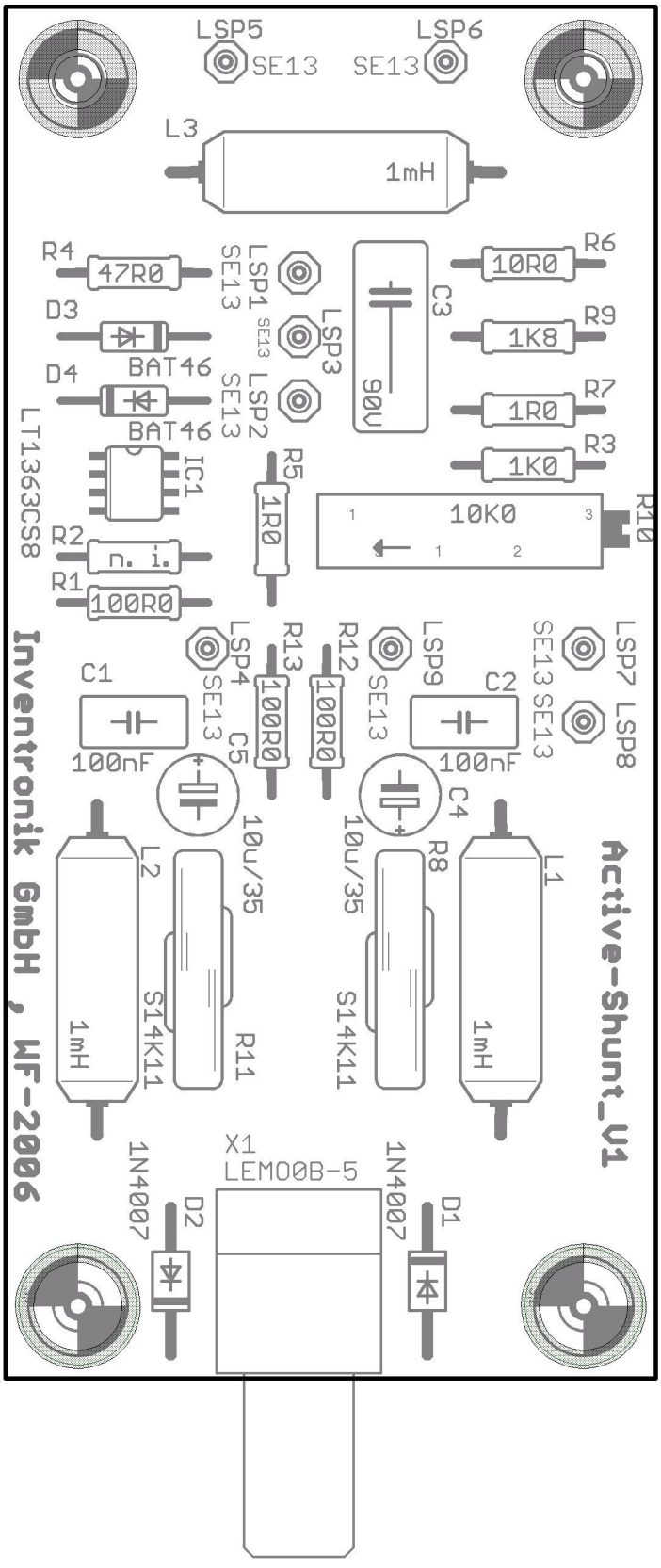
In addition to the measurements mentioned in the figure, the output voltage of the operational amplifier (LSP4) is controlled against the voltage at the test pins LSP1 – LSP2.

Appendix

Schematics of the Shunt

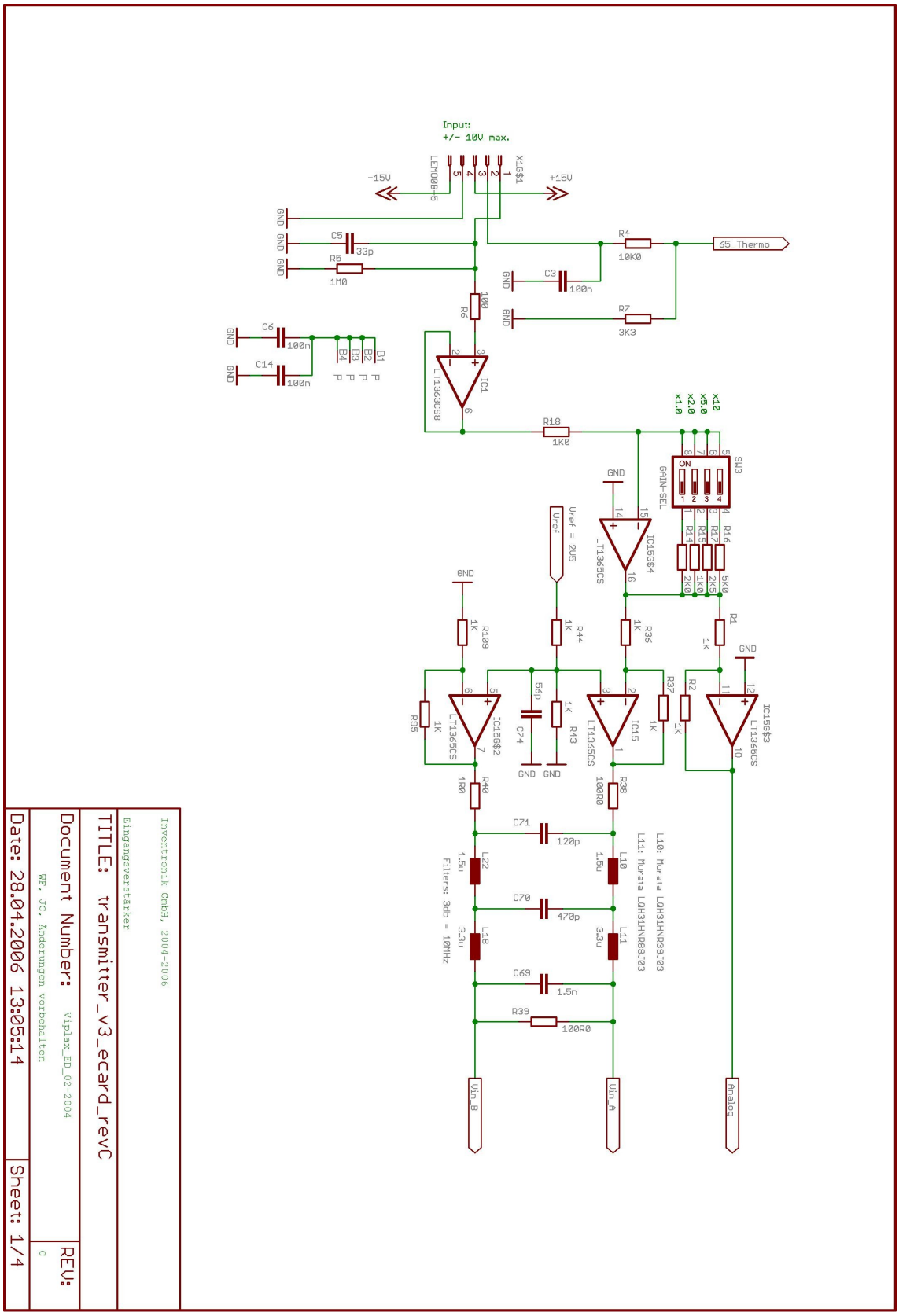


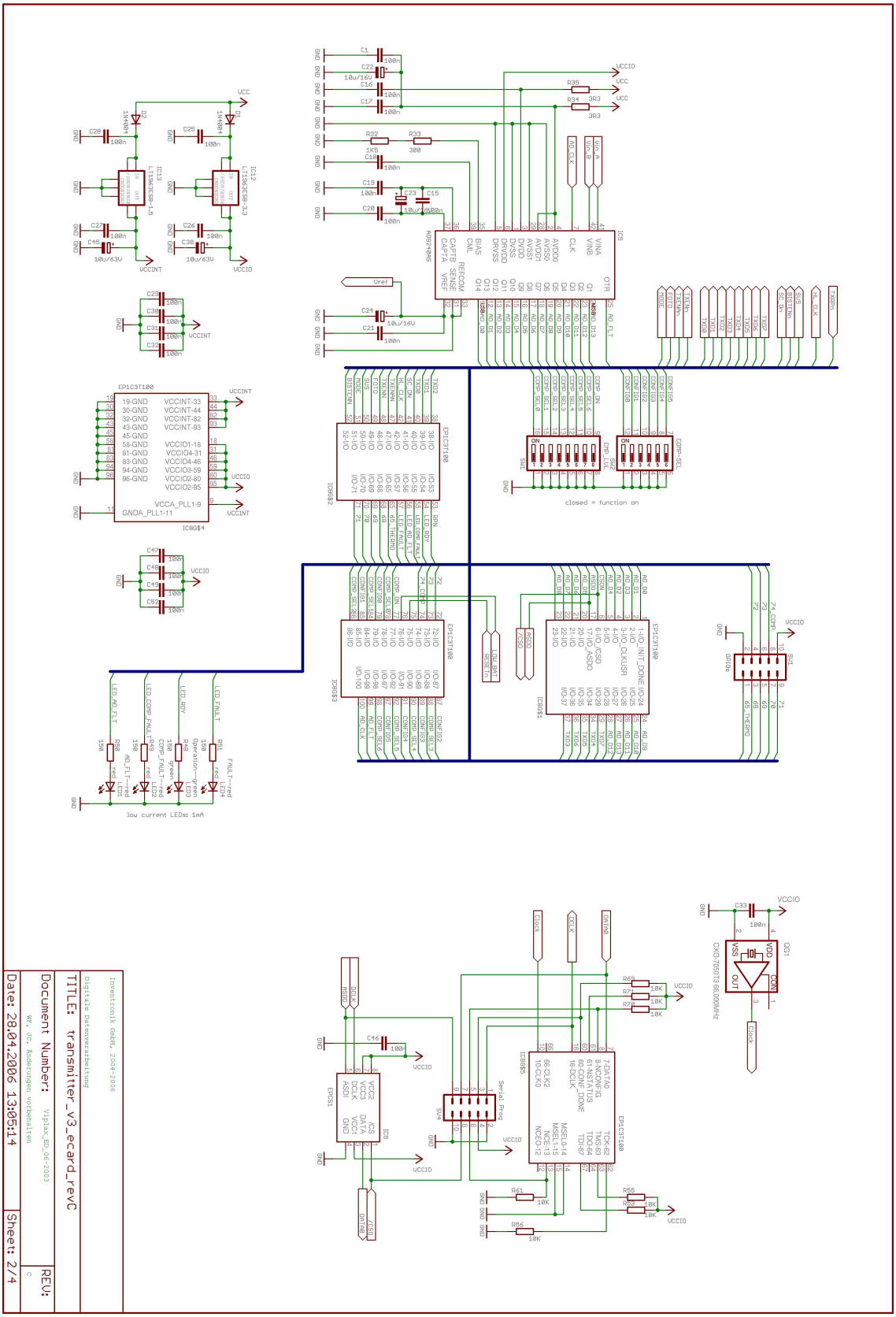
Printed Circuit Board for the Shunt



Schematics of the eCard Transmitter

The Shunt as an accessory to the Viplax system, can be directly connected to the Viplax eCard type transmitter. Detailed information of the analog section of the transmission units follows as schematics and the transmitter printed circuit board.




Inventronik GmbH, 2004-2006
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Document Number: Viplex_ED_06-2003
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REV: c
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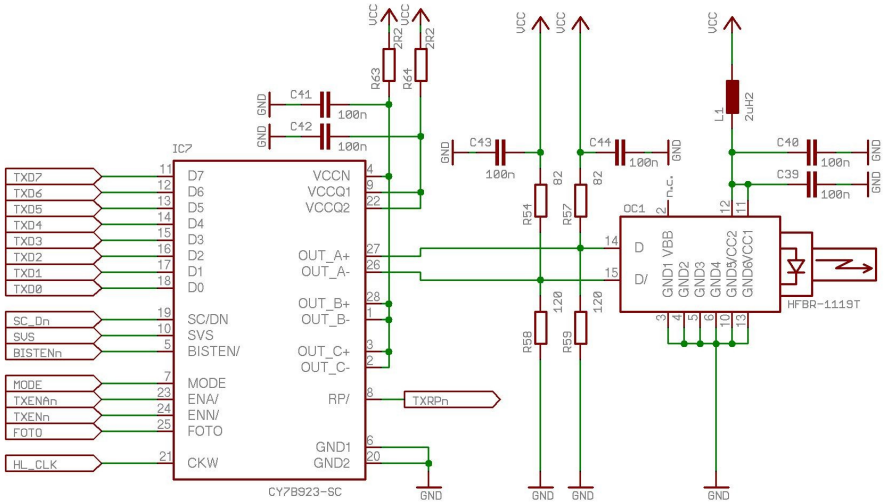
low current LEDs: 1mA



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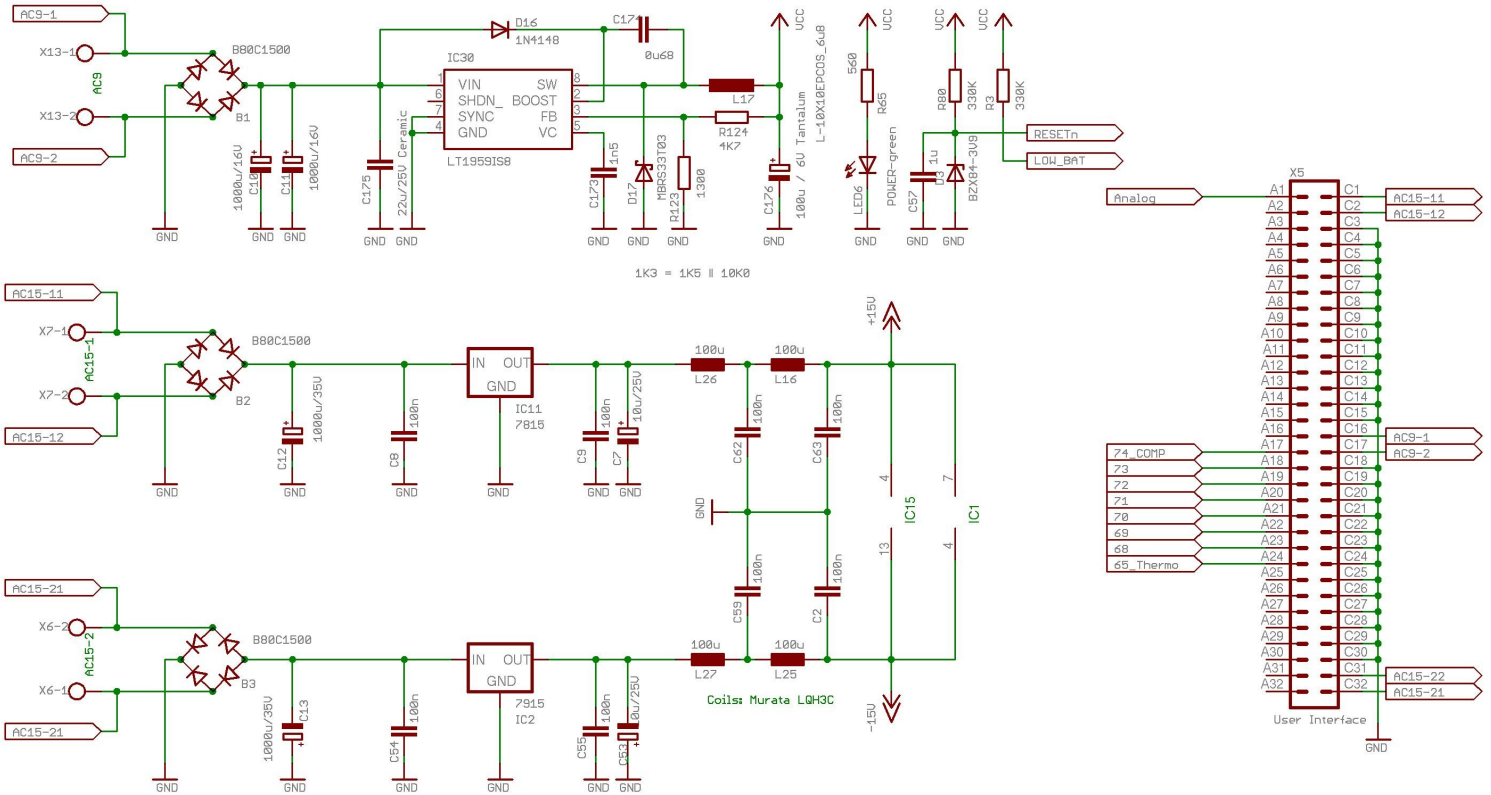

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eCard Transmitter Printed Circuit Board