SENSOR MODULE
with IHM-A-1500

ISABELLENHÜTTE
Heusler GmbH & Co. KG

IMS-A-R0001

1. Description

The sensormodul IMS-A-R0001 has been designed for all applications in which high currents, voltages and temperatures have to be measured. It contains a 100 µOhm precision resistor, the ISA-ASIC and all analog circuitry for a complete 4-channel 16bit data acquisition system. It has been developed as a highly versatile subunit for a simple integration into an external µC system.

2. Electrical characteristics

	range	resolution
Current	max. ±1500 A	1 mA
voltage	0...20V	1mV
Internal temp.	-40...+125°C	0.1°C

3. Electrical circuit

See page 2

4. Pin configuration (left to right)

SIL-type connector
12 PINs, spacing 1.28 mm
solder pads with through connections

number	Function
1	EZPRG
2	CLK [1]
3	SCLK
4	SDAT
5	INTN
6	VDDD
7	GND
8	VDDA
9	REF (output)
10	VBAT [2]
11	VBAT DC [3]
12	VBAT AC (not used)

Notes:
[1] the clock frequency of a 8 Mhz oszillator has to be applied
[2] the battery voltage has to be applied
[3] this line is provided for the external µC to switch the battery voltage on(high signal) and off (low signal) to reduce to current consumption in the active wake-up mode)

Two solder pads are provided for the connection of an external sensor. This sensor can be activated by the internal current source. The voltage drop will be seen at the ETS input.
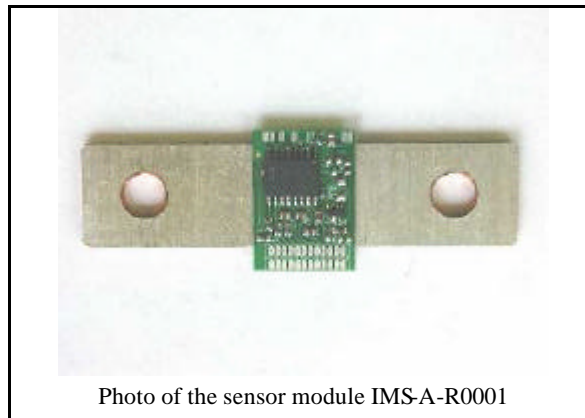
5. Photo

Photo of the sensor module IMS-A-R0001

6. Calibration

The modul is precalibrated and the calibration constants are written into the ZZR-register which is a OTP-memory. These data are automatically loaded into the RAM register TRR during the power up routine (POR).

The following properties are calibrated:

- offset of the amplifier (TRIMA)
- internal current source (TRIMC)
- absolute value of the reference voltage (RIMBV)
- TC value of the reference voltage (TRIMBT C)

In addition the ISA-ASIC provides the possibility to calibrate the absolute values of all input channels. The calibration coefficients can also be stored in the ZZR-register (for more details see data sheet of the IHM-A-1500)

7. Shunt drawing

See page 3 (drawing-no. Z-YR-216)

8. General

For a fast and easy start with this module the source code for the serial communication between the ISA-ASIC and the external µC can be provided in C-code.
The driving power of the digital output lines of the ASIC is limited, therefore the lenghth of the connector lines to the external µC should be as short as possible. It should never exceed a length of 100 mm to avoid errors due to dropout and interferences.
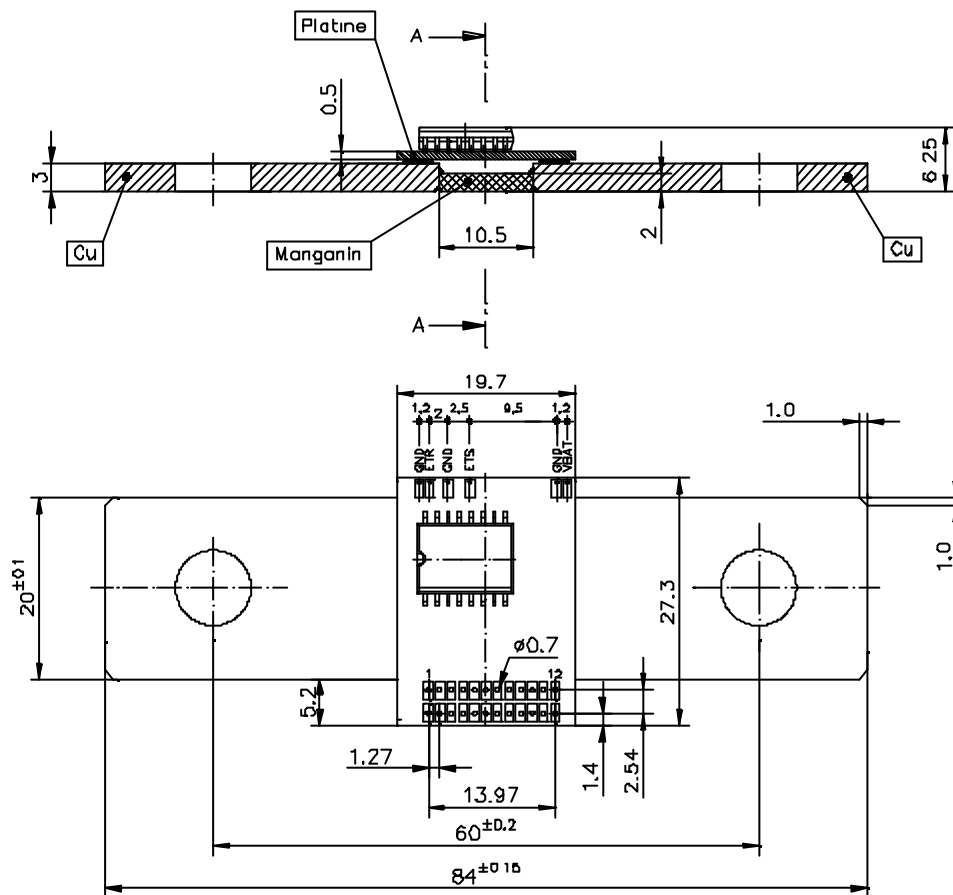
IMS-A-R0001	ISABELLENHÜTTE Heusler GmbH & Co. KG	Dillenburg, 01.06.2005, he

Electrical circuit

IMS-A-R0001 V05

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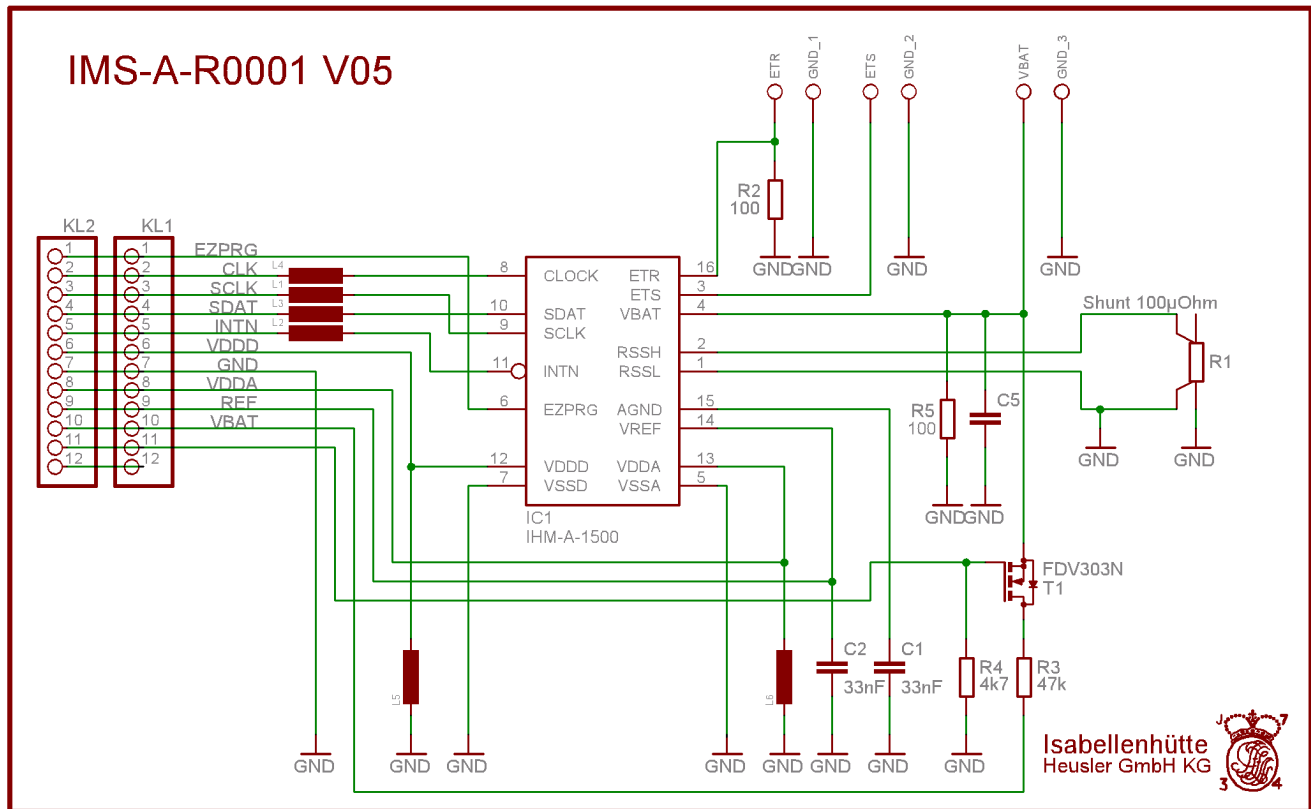
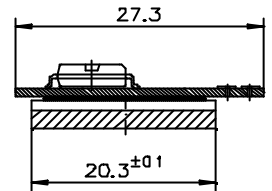## drawing-no. Z-YR-216B

Schnitt A — A

Platine = plate
Schnitt A - A = sectional view A - A