Appendix 3

pages 1 - 5

DASY- DOSIMETRIC ASSESSMENT SYSTEM
CALIBRATION REPORT

DATA ACQUISITION ELECTRONICS

Schmid & Partner
Engineering AG

Staffelstrasse 8, 8045 Zürich, Switzerland, Telefon +41 1 280 08 60, Fax +41 1 280 08 64

DASY - DOSIMETRIC ASSESSMENT SYSTEM

CALIBRATION REPORT

DATA ACQUISITION ELECTRONICS

MODEL:	DAE2
SERIAL NUMBER:	213

This Data Acquisition Unit was calibrated and tested using a FLUKE 702 Process Calibrator. Calibration and verification were performed at an ambient temperature of 23 ± 5 °C and a relative humidity of < 70%.

Measurements were performed using the standard DASY software for converting binary values, offset compensation and noise filtering. Software settings are indicated in the reports.

Results from this calibration relate only to the unit calibrated.

Calibrated by:	M.Bruggmann
Calibration Date:	6.8.1998
DASY Software Version:	DASY3 V1.0b

1. DC Voltage Measurement

DA - Converter Values from DAE

High Range:	1LSB =	6.1μV ,	full range =	400 mV
Low Range:	1LSB =	61nV ,	full range =	4 mV

Software Set-up: Calibration time: 3 sec Measuring time: 3 sec

Setup	X	Y	Z
High Range	400	400	400
Low Range	4	4	4
Connector Position	0°		

High Range	Input	Reading in μV	% Error
Channel X + Input	200mV	200484.8	0.24
	20mV	20052.84	0.26
Channel X - Input	20mV	-20044.08	0.22
Channel Y + Input	200mV	200692.8	0.35
	20mV	20070.9	0.35
Channel Y - Input	20mV	-20062.35	0.31
Channel Z + Input	200mV	200779.3	0.39
	20mV	20080.92	0.40
Channel Z - Input	20mV	-20071.6	0.36

Low Range	Input	Reading in μV	% Error
Channel X + Input	2mV	2004.037	0.20
	0.2mV	200.4825	0.24
Channel X - Input	0.2mV	-201.2267	0.61
Channel Y + Input	2mV	2010.955	0.55
	0.2mV	201.1715	0.59
Channel Y - Input	0.2mV	-201.258	0.63
Channel Z + Input	2mV	2011.045	0.55
	0.2mV	201.405	0.70
Channel Z - Input	0.2mV	-201.272	0.64

2. Common mode sensitivity

Software Set-up
Calibration time: 3 sec, Measuring time: 3 sec
Low Range

in µV	Common mode Input Voltage	High Range Reading	Low Range Reading
Channel X	200mV	-15.01851	-16.37388
	- 200mV	3.9423	5.190906
Channel Y	200mV	-5.942738	-12.73525
	- 200mV	8.959845	14.79019
Channel Z	200mV	-13.70552	-7.222769
	- 200mV	13.74889	1.222047

3. Channel separation

Software Set-up
Calibration time: 3 sec, Measuring time: 3 sec
High Range

in µV	Input Voltage	Channel X	Channel Y	Channel Z
Channel X	200mV	-	-2.15438	-3.630622
Channel Y	200mV	-3.786761	-	-2.68589
Channel Z	200mV	-11.63471	-3.185863	-

4. AD-Converter Values with inputs shorted

in LSB	Low Range	High Range
Channel X	15341.1	16472.43
Channel Y	17057.39	16493.9
Channel Z	15677.94	16476.23

5. Input Offset Measurement

Measured after 15 min warm-up time of the Data Acquisition Electronic.
Every Measurement is preceded by a calibration cycle.

Software set-up:

Calibration time:	3 sec
Measuring time:	3 sec
Number of measurements: 100,	Low Range

Input 10MΩ

in µV	Average	min. Offset	max. Offset	Std. Deviation
Channel X	-0.54654	-1.7898	0.5676	0.6451
Channel Y	-0.46657	-1.2647	0.56467	0.52184
Channel Z	-0.04984	-1.9876	1.0168	0.65748

Input shorted

in µV	Average	min. Offset	max. Offset	Std. Deviation
Channel X	-0.1067	-0.65465	0.46841	0.6577
Channel Y	-0.41078	-0.7414	0.4235	0.46574
Channel Z	0.4218914	-0.46771	0.5719	0.79841

6. Input Offset Current

in fA	Input Offset Current
Channel X	< 100
Channel Y	< 100
Channel Z	< 100

7. Input Resistance

	Calibrating	Measuring
Channel X	199.6 kΩ	20.2 MΩ
Channel Y	199.7 kΩ	20.2 MΩ
Channel Z	199.2 kΩ	20.2 MΩ

8. Low Battery Alarm Voltage

in V	Alarm Level
Supply (+ Vcc)	5.3 V
Supply (- Vcc)	-5.6V

9. Power Consumption

in mA	Switched off	Stand by	Transmitting
Digital Supply (VCC)	0.011	4.72	12.2
Analog Supply (+ Vcc)	0.003	9.89	9.94
Analog Supply (- Vcc)	0.1	-9.7	-9.8

10. Functional test

Touch async pulse 1	ok
Touch async pulse 2	na
Touch status bit 1	ok
Touch status bit 2	na
Remote power off	ok
Remote analog Power control	ok

Date: 6.8.98 Signature: M. Bu[illegible]