D3: DAE

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

Client

CALIBRATION CERTIFICATE

Object(s)	DAE3 - SN:579
Calibration procedure(s)	QA CAL-06.v3 Calibration procedure for the data acquisition unit (DAE)
Calibration date:	August 15, 2003
Condition of the calibrated item	In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	3-Sep-01	Sep-03

	Name	Function	Signature
Calibrated by:	Philipp Storchenegger	Technician	
Approved by:	Fin Bomholt	R&D Director	

Date issued: August 15, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

1. Cal Lab. Incoming Inspection & Pre Test

Modification Status	Note Status here → → → →	BC
Visual Inspection	Note anomalies.....	None
	.....	.....
Pre Test	**Indication**	**Yes/No**
Probe Touch	Function	Yes
Probe Collision	Function	Yes
Probe Touch&Collision	Function	Yes

2. DC Voltage Measurement

A/D - Converter Resolution nominal

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

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	**X**	**Y**	**Z**
High Range rounded to 7 digits	404.5370401	404.5593911	404.3923437
Low Range rounded to 6 digits	3.9686	3.9584	3.95
Connector Angle to be used	in DASY System	311 °	

High Range	**Input**	**Reading in μV**	**% Error**
Channel X + Input	200mV	199999.6	0.00
	20mV	19998.2	-0.01
Channel X - Input	20mV	-19995.3	-0.02
Channel Y + Input	200mV	199999.8	0.00
	20mV	19998.3	-0.01
Channel Y - Input	20mV	-19993.6	-0.03
Channel Z + Input	200mV	200000.6	0.00
	20mV	19997.8	-0.01
Channel Z - Input	20mV	-19994.3	-0.03

Low Range	**Input**	**Reading in μV**	**% Error**
Channel X + Input	2mV	1999.99	0.00
	0.2mV	199.66	-0.17
Channel X - Input	0.2mV	-200.21	0.11
Channel Y + Input	2mV	1999.89	-0.01
	0.2mV	199.20	-0.40
Channel Y - Input	0.2mV	-201.14	0.57
Channel Z + Input	2mV	1999.99	0.00
	0.2mV	199.18	-0.41
Channel Z - Input	0.2mV	-202.26	1.13

3. Common mode sensitivity

DASY measurement parameters:
Auto Zero Time: 3 sec, Measuring time: 3 sec
High/Low Range

in μV	Common mode Input Voltage	High Range Reading	Low Range Reading
Channel X	200mV	5.15	5.17
	- 200mV	-4.35	-4.88
Channel Y	200mV	9.00	8.70
	- 200mV	-10.57	-10.21
Channel Z	200mV	8.93	8.00
	- 200mV	-10.74	-10.51

4. Channel separation

DASY measurement parameters:
Auto Zero Time: 3 sec, Measuring time: 3 sec
High Range

in μV	Input Voltage	Channel X	Channel Y	Channel Z
Channel X	200mV	-	0.87	-0.39
Channel Y	200mV	0.80	-	2.29
Channel Z	200mV	-2.73	-0.30	-

5. AD-Converter Values with inputs shorted

in LSB	Low Range	High Range
Channel X	16102	16311
Channel Y	16055	16139
Channel Z	15811	15833

6. Input Offset Measurement

DASY measurement parameters:
Auto Zero 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	0.25	-1.75	1.20	0.43
Channel Y	-1.47	-2.17	0.46	0.35
Channel Z	-1.64	-2.78	0.28	0.45