

D3: DAE

Client

ADT (Auden)

CALIBRATION CERTIFICATE

Object(s)

DAE3 - SN:510

Calibration procedure(s)

QA CAL-06.v2

Calibration procedure for the data acquisition unit (DAE)

Calibration date:

June 2, 2003

Condition of the calibrated item

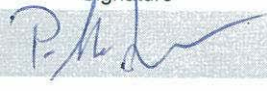
In Tolerance (according to the specific calibration document)

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 Bornholt	R&D Director	
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Date issued: June 2, 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. DC Voltage Measurement

DA - Converter Values from DAE

High Range: 1LSB = $6.1\mu\text{V}$, 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	403.2306258	403.4757894	403.8449771
Low Range	3.95687	3.92485	3.95853
Connector Position	44 °		

High Range	Input	Reading in μV	% Error
Channel X + Input	200mV	200000.2	0.00
	20mV	19993.79	-0.03
Channel X - Input	20mV	-19980.99	-0.10
Channel Y + Input	200mV	200000.4	0.00
	20mV	20001.85	0.01
Channel Y - Input	20mV	-19996.06	-0.02
Channel Z + Input	200mV	200000	0.00
	20mV	20005.1	0.03
Channel Z - Input	20mV	-19995.49	-0.02

Low Range	Input	Reading in μV	% Error
Channel X + Input	2mV	1999.96	0.00
	0.2mV	200.262	0.13
Channel X - Input	0.2mV	-200.476	0.24
Channel Y + Input	2mV	1999.94	0.00
	0.2mV	199.654	-0.17
Channel Y - Input	0.2mV	-200.567	0.28
Channel Z + Input	2mV	1999.94	0.00
	0.2mV	199.089	-0.46
Channel Z - Input	0.2mV	-200.866	0.43

2. Common mode sensitivity

Software Set-up

Calibration 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	17.0932	16.4097
	- 200mV	-16.4559	-16.8147
Channel Y	200mV	14.0608	14.2761
	- 200mV	-17.3783	-16.0218
Channel Z	200mV	-10.1267	-10.289
	- 200mV	9.00246	9.53265

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	-	2.61579	-0.0916442
Channel Y	200mV	0.799878	-	4.96696
Channel Z	200mV	-0.930035	0.207589	-

4. AD-Converter Values with inputs shorted

in LSB	Low Range	High Range
Channel X	16987	15970
Channel Y	17091	16204
Channel Z	16130	16170

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 10M Ω

in μ V	Average	min. Offset	max. Offset	Std. Deviation
Channel X	0.28	-0.35	1.12	0.25
Channel Y	-2.13	-3.88	-1.32	0.34
Channel Z	-0.46	-1.98	0.32	0.30

Input shorted

in μ V	Average	min. Offset	max. Offset	Std. Deviation
Channel X	0.08	-0.98	0.82	0.20
Channel Y	-0.67	-2.26	2.04	0.37
Channel Z	-0.82	-1.30	-0.37	0.19

6. Input Offset Current

in fA	Input Offset Current
Channel X	< 25
Channel Y	< 25
Channel Z	< 25

7. Input Resistance

	Calibrating	Measuring
Channel X	200.1 k Ω	200.28 M Ω
Channel Y	200.07 k Ω	197.89 M Ω
Channel Z	200.06 k Ω	198.39 M Ω

8. Low Battery Alarm Voltage

in V	Alarm Level
Supply (+ Vcc)	7.86 V
Supply (- Vcc)	-7.69 V

9. Power Consumption

in mA	Switched off	Stand by	Transmitting
Supply (+ Vcc)	0.000	5.28	14.2
Supply (- Vcc)	-0.012	-7.47	-8.76

10. Functional test

Touch async pulse 1	ok
Touch async pulse 2	ok
Touch status bit 1	ok
Touch status bit 2	ok
Remote power off	ok
Remote analog Power control	ok
Modification Status	B – C