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Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
 - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
 - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
 - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
 - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
 - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V , full range = -100...+300 mV

Low Range: 1LSB = 61nV , full range = -1.....+3mV

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

Calibration Factors	X	Y	Z
High Range	404.919 $\pm$ 0.02% (k=2)	405.353 $\pm$ 0.02% (k=2)	405.350 $\pm$ 0.02% (k=2)
Low Range	3.96277 $\pm$ 1.50% (k=2)	3.99410 $\pm$ 1.50% (k=2)	4.00705 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	175.5 $^{\circ}$ $\pm$ 1 $^{\circ}$
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Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	200015.09	-3.17	-0.00
Channel X + Input	19989.59	0.61	0.00
Channel X - Input	-20022.13	1.31	-0.01
Channel Y + Input	200017.47	-1.39	-0.00
Channel Y + Input	19987.03	-2.38	-0.01
Channel Y - Input	-20023.15	-0.10	0.00
Channel Z + Input	200019.38	-3.17	-0.00
Channel Z + Input	19987.31	-2.24	-0.01
Channel Z - Input	-20026.23	-3.27	0.02

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	1984.27	0.03	0.00
Channel X + Input	183.17	-1.00	-0.54
Channel X - Input	-216.75	-1.01	0.47
Channel Y + Input	1984.61	0.09	0.00
Channel Y + Input	183.31	-1.11	-0.60
Channel Y - Input	-217.09	-1.54	0.71
Channel Z + Input	1984.73	0.13	0.01
Channel Z + Input	182.92	-1.64	-0.89
Channel Z - Input	-216.76	-1.35	0.63

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	1.47	0.02
	- 200	0.64	-1.28
Channel Y	200	-15.56	-15.96
	- 200	14.16	14.04
Channel Z	200	7.27	7.11
	- 200	-8.69	-8.81

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	3.46	-2.98
Channel Y	200	8.47	-	4.37
Channel Z	200	10.16	6.19	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15851	15635
Channel Y	16300	16437
Channel Z	16069	16188

5. Input Offset Measurement

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

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	1.40	-0.15	2.20	0.32
Channel Y	-0.17	-1.27	1.97	0.51
Channel Z	-1.49	-2.36	-0.38	0.33

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9