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Accreditation No.: **SCS 108**

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:** 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.

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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	404.675 $\pm$ 0.1% (k=2)	404.426 $\pm$ 0.1% (k=2)	404.582 $\pm$ 0.1% (k=2)
Low Range	3.97902 $\pm$ 0.7% (k=2)	3.97676 $\pm$ 0.7% (k=2)	3.97703 $\pm$ 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	57 ° $\pm$ 1 °
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Appendix

1. DC Voltage Linearity

High Range	Input (μV)	Reading (μV)	Error (%)
Channel X + Input	200000	199999.6	0.00
Channel X + Input	20000	20010.85	0.05
Channel X - Input	20000	-20007.22	0.04
Channel Y + Input	200000	199999.7	0.00
Channel Y + Input	20000	20004.64	0.02
Channel Y - Input	20000	-20007.87	0.04
Channel Z + Input	200000	199999.9	0.00
Channel Z + Input	20000	20006.37	0.03
Channel Z - Input	20000	-20004.56	0.02

Low Range	Input (μV)	Reading (μV)	Error (%)
Channel X + Input	2000	2000.1	0.00
Channel X + Input	200	200.31	0.16
Channel X - Input	200	-200.05	0.03
Channel Y + Input	2000	2000.1	0.00
Channel Y + Input	200	200.32	0.16
Channel Y - Input	200	-201.77	0.89
Channel Z + Input	2000	1999.9	0.00
Channel Z + Input	200	199.01	-0.50
Channel Z - Input	200	-201.29	0.64

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	4.04	3.25
	- 200	-2.86	-3.04
Channel Y	200	-8.82	-8.52
	- 200	6.51	7.21
Channel Z	200	10.37	10.27
	- 200	-12.69	-12.80

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	-	2.55	-0.94
Channel Y	200	0.77	-	2.38
Channel Z	200	-1.41	-0.39	-

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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	16118	16294
Channel Y	15879	15841
Channel Z	16155	16260

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	0.35	-1.09	1.93	0.35
Channel Y	-1.29	-2.07	-0.24	0.35
Channel Z	-0.68	-1.73	0.45	0.36

6. Input Offset Current

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

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2000	198.4
Channel Y	0.2000	200.1
Channel Z	0.2001	199.5

8. Low Battery Alarm Voltage (verified during pre test)

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

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	-0.01	-8	-9