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 =	6.1μV ,	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	404.902 ± 0.02% (k=2)	404.679 ± 0.02% (k=2)	405.773 ± 0.02% (k=2)
Low Range	3.97207 ± 1.50% (k=2)	3.94819 ± 1.50% (k=2)	3.99503 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	325.0 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199995.13	2.57	0.00
Channel X	+ Input	20000.49	-1.29	-0.01
Channel X	- Input	-19998.95	2.31	-0.01
Channel Y	+ Input	199993.48	0.79	0.00
Channel Y	+ Input	19999.49	-2.26	-0.01
Channel Y	- Input	-20000.37	0.92	-0.00
Channel Z	+ Input	199993.40	0.68	0.00
Channel Z	+ Input	19998.76	-2.86	-0.01
Channel Z	- Input	-20001.56	-0.21	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.29	0.12	0.01
Channel X	+ Input	201.78	0.21	0.10
Channel X	- Input	-198.04	0.29	-0.15
Channel Y	+ Input	2001.22	0.20	0.01
Channel Y	+ Input	201.23	-0.23	-0.12
Channel Y	- Input	-198.91	-0.49	0.25
Channel Z	+ Input	2001.14	0.16	0.01
Channel Z	+ Input	200.64	-0.72	-0.36
Channel Z	- Input	-199.54	-1.00	0.51

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	-12.20	-13.58
	- 200	14.65	13.01
Channel Y	200	-7.85	-8.28
	- 200	7.33	7.21
Channel Z	200	16.85	16.68
	- 200	-19.88	-19.26

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	-	1.88	-3.29
Channel Y	200	7.95	-	3.37
Channel Z	200	9.73	5.70	-

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	16117	14859
Channel Y	15964	16277
Channel Z	15850	15306

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.75	-0.29	1.77	0.34
Channel Y	0.27	-0.62	2.21	0.42
Channel Z	-0.21	-0.99	0.48	0.30

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