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	404.538 ± 0.02% (k=2)	404.631 ± 0.02% (k=2)	404.147 ± 0.02% (k=2)
Low Range	4.02032 ± 1.50% (k=2)	4.01467 ± 1.50% (k=2)	4.01239 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	150.5 ° ± 1 °

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199998.26	2.92	0.00
Channel X	+ Input	20002.53	0.37	0.00
Channel X	- Input	-20001.05	1.19	-0.01
Channel Y	+ Input	199996.32	1.35	0.00
Channel Y	+ Input	20000.21	-1.92	-0.01
Channel Y	- Input	-20003.93	-1.59	0.01
Channel Z	+ Input	199996.80	1.67	0.00
Channel Z	+ Input	19999.03	-2.98	-0.01
Channel Z	- Input	-20004.13	-1.81	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.06	0.07	0.00
Channel X	+ Input	201.18	-0.07	-0.03
Channel X	- Input	-198.83	-0.17	0.09
Channel Y	+ Input	2001.13	0.13	0.01
Channel Y	+ Input	200.06	-1.17	-0.58
Channel Y	- Input	-199.86	-1.05	0.53
Channel Z	+ Input	2001.13	0.21	0.01
Channel Z	+ Input	200.63	-0.47	-0.23
Channel Z	- Input	-199.56	-0.77	0.39

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	-14.86	-16.96
	- 200	18.57	16.65
Channel Y	200	-9.13	-10.04
	- 200	7.83	7.46
Channel Z	200	-5.73	-5.48
	- 200	4.10	4.22

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	-	4.53	-2.66
Channel Y	200	8.83	-	6.35
Channel Z	200	8.37	6.18	-

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	16012	14821
Channel Y	16075	17443
Channel Z	16061	13144

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	0.33	-0.71	1.31	0.34
Channel Y	-1.48	-3.09	-0.07	0.43
Channel Z	0.03	-1.43	0.93	0.36

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

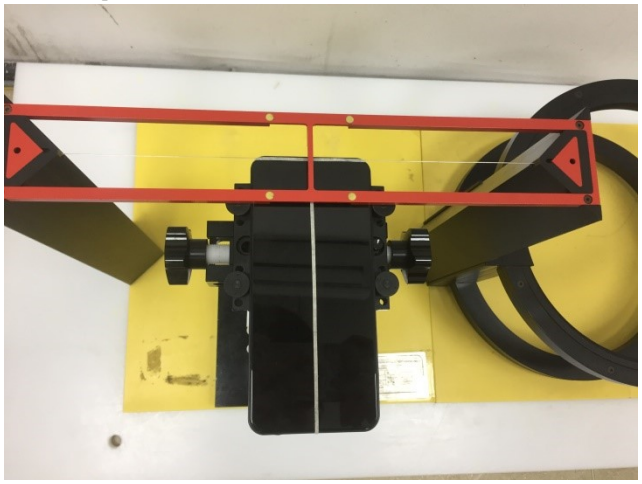
8. Low Battery Alarm Voltage (Typical values for information)

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

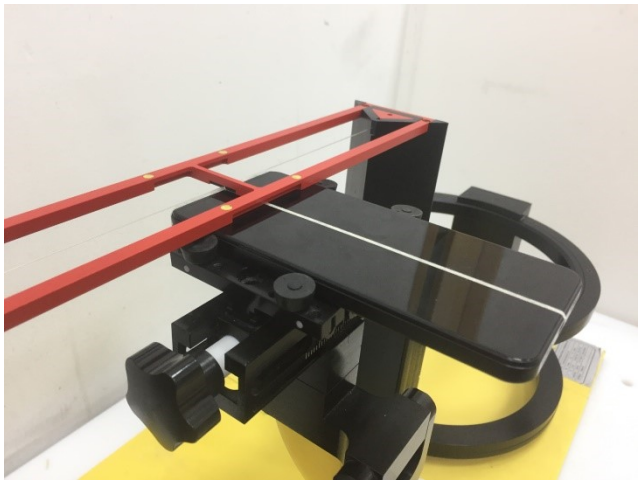
9. Power Consumption (Typical values for information)

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

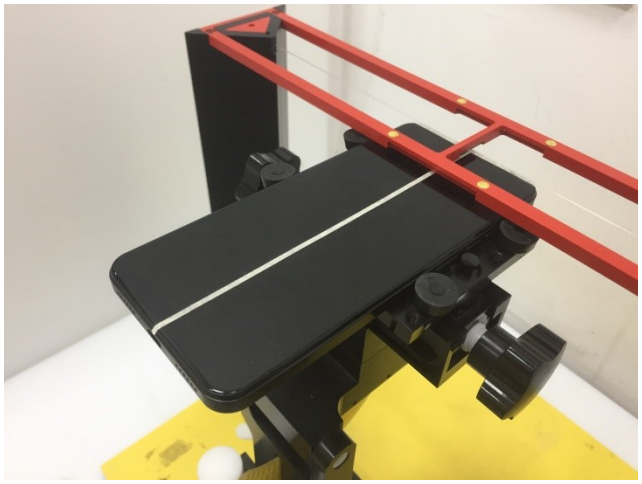
Appendix C. Test Setup Photos



Front View



Left Side View



Right Side View