CARLO GAVAZZI SPACE SpA

Sede Legale: 20151 Milano (IT) - Via Gallarate, 150 - Tel. +39-02-380481 - Fax: Gen +39-02-3086458 - U A +39-02-38048260 - Amm. +39-02-38048207
E-mail:cgs@cgspace.it - http: //www cgspace.it
Cap. Soc L 2.700.000 000 i v. - Reg Imp 273767 - C C I A A. di Milano 1254780 - C F / P.I. IT08921330158

CARLO GAVAZZ

DOCUMENTO DI TRASPORTO		DESTINATARIO
N 167	DEL 07.07.03	LPSC Logistic Dep. 53, Av. Des Martyrs 38026 GRENOBLE CEDEX Francia
NS. COMMESSE N. 1913		ALL'ATTENZIONE DI MR. Robert Foglio

. DESTINAZIONE MERCE

VS. ORDINE N.

	QUANTITÀ	DESCRIZIONE	CODICE MODELLO
	220	M ultidrode Photomultiplier Tube Assembler	R7600-00-M16

CAUSALE DEL TRASPORTO

Supply for bid contract n. I/020/03/0

ASPETTO ESTERIORE DEI BENI	N. COLLI	PESO KG.	PORTO
Boxes	5	13.05	carriage forward

TRASPORTO A MEZZO: MITTENTE ☐ DESTINATARIO ☐ VETTORE ☐

		DATA	ORA	FIRMA DEL CONDUCENTE
INIZIO TRASPORTO O CONSEGNA				
VETTORI	UPS MILANO	DATA	ORA	FIRMA
		DATA	ORA	FIRMA
		DATA	ORA	FIRMA

DOCUMENTO di TRASPORTO
(D.P.R. n. 472 del 14/08/96)

FIRMA DEL DESTINATARIO

1° Bianca per destinatario – 2° Verde per vettore – 3° Gialla per mittente

Honeywell Sensing and Control

Elmwood Sensors Inc

GROUP "A" ACCEPTANCE DATA

REPORT NUMBER QCR 2692

CUSTOMER NAME:	SEPEL
LOCATION	Orlando, FL
PART NAME:	THERMAL SWITCH
TYPE OF DATA	ATTRIBUTE, VARIABLE
CUSTOMER PURCHASE ORDER:	250160CGS-1
CUSTOMER PART NUMBER:	370200101CMLM04(2)10(2)70K1
GENERIC SPECIFICATION:	ESA/SCC 3702 ISSUE 2 4/95
DETAIL SPECIFICATION:	ESA/SCC 3702/001 ISSUE 2A 11/95
SPECIFICATION AMENDMENT	MLM-SAR-AI-004 ISSUE 2
ELMWOOD SPECIFICATION NUMBER	SR243 REV-
ELMWOOD PART NUMBER	3200-2-678
QUANTITY SHIPPING	24 PIECES
SERIAL NUMBERS RANGE OF DATA:	00060-00114
SERIAL NUMBERS SHIPPED:	See page 2
LOT NUMBER	18025
LOT DATE CODE:	05/46

Dolores A. Plouffe — 2/24/06

PREPARED BY — DATE

Doreen Chouinard — 2/24/06

QUALITY REPRESENTATIVE — DATE

SUMMARY OF SERIAL NUMBERS SHIPPED

CUSTOMER: SEPEL

SHOP ORDER: 18025

PART NUMBER: 3200-2-678

WORK ORDER: 4255645

SERIAL NUMBER	DATE	COMMENTS
00063	2/24/2006	LAT 3 SAMPLE NON DESTRUCTIVE
00064		LAT 3 SAMPLE NON DESTRUCTIVE
00068		LAT 3 SAMPLE NON DESTRUCTIVE
00072		LAT 3 SAMPLE NON DESTRUCTIVE
00074		LAT 3 SAMPLE NON DESTRUCTIVE
00075		LAT 3 SAMPLE NON DESTRUCTIVE
00060		LAT 3 DESTRUCTIVE SAMPLE
00067		LAT 3 DESTRUCTIVE SAMPLE
00081		LAT 3 DESTRUCTIVE SAMPLE
00124		LAT 3 DESTRUCTIVE SAMPLE
00077		
00079		
00084		
00090		
00092		
00096		
00099		
00101		
00102		
00106		
00107		
00108		
00111		
00114		

2/17

HONEYWELL SENSING AND CONTROL
THERMAL BUSINESS UNIT
500 NARRAGANSETT PARK DRIVE
PAWTUCKET, RI 02861-4325, U.S.A

CERTIFICATE OF COMPLIANCE

COMPLIANCE DATE: 02/24/06

CUSTOMER: SEPEL

CUSTOMER'S PURCHASE ORDER NO: 250160CGS-1

ELMWOOD SHOP ORDER NO: 18025

ELMWOOD PART NO: 3200-2-678 QUANTITY: 24

CUSTOMER'S PART NO: 370200101CMLMO4(2)10(2)70K1

CUSTOMER SPECIFICATION: ESA/SCC 3702 ISSUE 2 4/95

ESA/SCC 3702/001 ISSUE 2A 11/95

SPECIFICATION AMENDMENT: MLM-SAR-AI-004 ISSUE 2

THIS IS TO CERTIFY THAT THE PRODUCTS DESCRIBED ABOVE HAVE BEEN INSPECTED WITH FULL ACCORDANCE AND TO THE REQUIREMENTS OF THE PURCHASE ORDER AND THE DRAWING SPECIFICATIONS APPLICABLE TO THAT ORDER. TEST AND INSPECTION REPORTS INDICATING CONFORMANCE ARE ON FILE WITH US AND ARE AVAILABLE FOR YOUR EXAMINATION.

THERMAL BUSINESS UNIT

Doreen Aboulaoud

COMPANY REPRESENTATIVE

FENWAL ELECTRONICS Inc

ELMWOOD SENSORS Inc

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C4LMC4 (2) 10 (2) 7CK1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. [illegible]

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.3 °C	-20.9	-27.1		✓	
		x̄ Close -27.1 °C	-19.9	-27.1			
		x̄ Diff N/A °C	-19.9	-27.1			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.0 ΔT 0.3 °C	-20.7	-27.1		✓	
		x̄ Close -27.1 ΔT 0.0 °C	-19.7	-27.1			
		x̄ Diff N/A ΔT N/A °C	-19.7	-27.1			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	12 mΩ 9 mΩ 10 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

3/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370-200101-0-42-1-04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00019

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.0 °C	-20.5	-27.7		✓	
		x̄ Close -27.4 °C	-19.9	-27.4			
		x̄ Diff N/A °C	-19.4	-27.4			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.1 ΔT 0.1 °C	-21.0	-27.6		✓	
		x̄ Close -27.7 ΔT 0.3 °C	-19.6	-27.7			
		x̄ Diff N/A ΔT N/A °C	-19.8	-27.7			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	7 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charbonneau

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

4/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 0341404 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 000054

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.9 °C	-20.3	-26.8		✓	
		x̄ Close -26.8 °C	-19.7	-26.9			
		x̄ Diff N/A °C	-19.6	-26.8			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.3 ΔT 0.4 °C	-20.7	-27.1		✓	
		x̄ Close -27.1 ΔT 0.3 °C	-20.3	-27.1			
		x̄ Diff N/A ΔT N/A °C	-19.9	-27.0			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	8 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charbonneau

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

5/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C94M04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00090

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.2 °C	-20.8	-27.1		✓	
		x̄ Close -27.0 °C	-20.0	-27.0			
		x̄ Diff N/A °C	-19.8	-27.0			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.0 ΔT 0.2 °C	-19.8	-27.2		✓	
		x̄ Close -27.2 ΔT 0.2 °C	-20.4	-27.2			
		x̄ Diff N/A ΔT N/A °C	-19.8	-27.3			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charlamont

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

6/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 CAL/104 (2)10 (2) 76K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00092

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.2 °C	-20.7	-27.6		✓	
		x̄ Close -27.6 °C	-20.2	-27.6			
		x̄ Diff N/A °C	-19.7	-27.6			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.5 ΔT 0.2 °C	-20.3	-27.9		✓	
		x̄ Close -27.9 ΔT 0.3 °C	-20.3	-27.9			
		x̄ Diff N/A ΔT N/A °C	-20.5	-27.9			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	9 mΩ 10 mΩ 10 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charlaund

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

7/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV LEVEL: N/A

CUSTOMER P/N: 370 200101 C 94404 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O NO: 25C160CGS-1 SERIAL NO. 002-96

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.6 °C	-21.1	-27.4		✓	
		x̄ Close -27.4 °C	-20.6	-27.4			
		x̄ Diff N/A °C	-20.2	-27.3			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.3 ΔT 0.3 °C	-20.7	-27.7		✓	
		x̄ Close -27.6 ΔT 0.2 °C	-20.1	-27.6			
		x̄ Diff N/A ΔT N/A °C	-20.2	-27.7			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500µA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ			✓	
			8 mΩ				
			8 mΩ				
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

8/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C4L4C4 (2)10 (2) 7CK1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00099

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.0 °C	-20.1	-26.9		✓	
		x̄ Close -26.9 °C	-20.1	-26.9			
		x̄ Diff N/A °C	-19.9	-26.9			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.7 ΔT .07 °C	-21.5	-27.0		✓	
		x̄ Close -27.0 ΔT 0.1 °C	-20.7	-27.0			
		x̄ Diff N/A ΔT N/A °C	-19.8	-27.0			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

9/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 0.01-104 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O NO: 35C160CGS-1 SERIAL NO. 00101

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.1 °C	-21.3	-27.7		✓	
		x̄ Close -27.7 °C	-20.8	-27.7			
		x̄ Diff N/A °C	-21.3	-27.7			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.7 ΔT 0.6 °C	-22.2	-27.9		✓	
		x̄ Close -22.9 ΔT 0.2 °C	-21.6	-27.9			
		x̄ Diff N/A ΔT N/A °C	-21.3	-27.9			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	7 mΩ 9 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

10/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV LEVEL: N/A

CUSTOMER P/N: 370 200101 C94 904 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P O NO: 250160CGS-1 SERIAL NO. 00102

REF. PARA	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open - 21.0 °C	-20.6	-27.1		✓	
		x̄ Close - 26.9 °C	-21.3	-26.9			
		x̄ Diff N/A °C	-21.2	-26.7			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open - 20.7 ΔT 0.3 °C	-20.7	-26.9		✓	
		x̄ Close - 26.9 ΔT 0.0 °C	-20.7	-26.9			
		x̄ Diff N/A ΔT N/A °C	-20.7	-26.9			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	8 mΩ			✓	
			8 mΩ				
			8 mΩ				
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

11/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370 200 101 0 91 904 4 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 35C160CGS-1 SERIAL NO 00106

REF. PARA	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.7 °C	-20.2	-26.5		✓	
		x̄ Close -26.5 °C	-19.4	-26.5			
		x̄ Diff N/A °C	-19.6	-26.5			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.7 ΔT 0.0 °C	-20.2	-26.7		✓	
		x̄ Close -26.7 ΔT 0.2 °C	-19.6	-26.7			
		x̄ Diff N/A ΔT N/A °C	-19.2	-26.8			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	8 mΩ 7 mΩ 7 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

12/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV LEVEL: N/A

CUSTOMER P/N: 370 200 101 0341 004 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 2501600GS-1 SERIAL NO. 00107

REF. PARA	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open - 20.3 °C	-20.7	-26.8		✓	
		x̄ Close - 26.8 °C	-20.1	-26.8			
		x̄ Diff N/A °C	-20.1	-26.8			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.9 ΔT 0.6 °C	-21.6	-27.0		✓	
		x̄ Close -27.0 ΔT 0.2 °C	-20.9	-27.0			
		x̄ Diff N/A ΔT N/A °C	-20.2	-26.9			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ 7 mΩ 7 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

13/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370 200/01 C 24 704 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O NO: 250160CGS-1 SERIAL NO. 2010-8

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open - 20.4 °C	-20.6	-27.4		✓	
		x̄ Close - 27.4 °C	-20.6	-27.4			
		x̄ Diff N/A °C	-20.1	-27.4			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.9 ΔT 0.5 °C	-21.4	-27.7		✓	
		x̄ Close -27.6 ΔT 0.2 °C	-21.0	-27.6			
		x̄ Diff N/A ΔT N/A °C	-20.4	-27.6			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	7 mΩ 9 mΩ 9 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

14/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C9L404 (2)10(2)70K1 LOT DATE CODE: 05/46

P.O NO: 250160GS-1 SERIAL NO. 00111

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.6 °C	-19.6	-26.8		✓	
		x̄ Close -26.8 °C	-19.4	-26.8			
		x̄ Diff N/A °C	-19.6	-26.8			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.1 ΔT 0.5 °C	-20.2	-26.9		✓	
		x̄ Close -26.9 ΔT 0.1 °C	-20.2	-26.9			
		x̄ Diff N/A ΔT N/A °C	-20.0	-26.9			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	7 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

15/17

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV LEVEL: N/A

CUSTOMER P/N: 370200101 0341004 (2)10 (2) 70K1 LOT DATE CODE: 05/46

P.O NO: 250160CGS-1 SERIAL NO. 00114

REF PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.4 °C	-21.1	-25.9		✓	
		x̄ Close -26.0 °C	-20.1	-26.1			
		x̄ Diff N/A °C	-20.1	-26.0			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.3 ΔT 0.1 °C	-20.6	-26.3		✓	
		x̄ Close -26.2 ΔT 0.2 °C	-20.4	-26.1			
		x̄ Diff N/A ΔT N/A °C	-19.7	-26.1			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	9 mΩ			✓	
			9 mΩ				
			9 mΩ				
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243
Sheet 8 of 11

16/17

FAILED COMPONENT LIST - PDA

ESI P/N 3200-2-678 LOT DATE CODE 05/46

CUSTOMER P/N 3702001010MLM04(2)10(2)70K1 REV LEVEL ISSUE 2

P.O. NO. 250160CGS-1 SR NO. 243

REF PARA.	DESCRIPTION OF TEST	QUANTITY TESTED	QUANTITY ACCEPTED	QUANTITY REJECTED	COMMENTS
6.2 1/	RAPID CHANGE OF TEMPERATURE	79	79	0	
6.3 1/	TEMPERATURE CALIBRATION & REPEATABILITY TESTING	79	42	37	
6.4	RUN-IN	42	42	0	
6.5	TEMPERATURE CALIBRATION & REPEATABILITY TESTING	42	34	5	3 ESI PULL-IN 5 PDA 12%
6.6	CREEPAGE	34	34	0	
6.7	VOLTAGE PROOF	34	34	0	
6.8	INSULATION RESISTANCE	34	34	0	
6.9	CONTACT RESISTANCE	34	34	0	
6.10 1/	SEAL TEST	34	34	0	
6.11	EXTERNAL VISUAL INSPECTION	34	32	2	PDA 6%

1/ PDA is not applicable.

17/17

ELMWOOD SENSORS, INC.

LAT3 TEST REPORT
NO. QCR-2692B

Prepared for:	SEPEL
Lot No.	18025
Purchase Order No.	250160CGS-1

LAT3 of 3200-2-678 switch, thermostatic (bimetallic) subminiature, Type 1, Class 4, hermetically sealed, single pole, single throw (SPST). Ten (10) units were tested, four (4) destructive, and six (6) Non-Destructive per ES1297 Rev-, ESA 3702 Issue 2A and Sepel P.O # 250160CGS-1

Prepared by: Paul D'Andreta
Paul D'Andreta
Quality Assurance

Approved by: Doreen Charland
Doreen Charland
Engineering Representative

Date: 2/24/06

ELMWOOD SENSORS, INC. 500 NARRAGANSETT PARK DRIVE PAWTUCKET, RI 02861-4325 401/727-1300	TITLE: LAT3 TEST REPORT FOR SEPEL P.O. NO. 25010CGS-1	CODE IDENT. NO. 14604 REPORT NO. QCR-2692 SHEET:

1.0 **SCOPE:**

This report covers LAT3 testing conducted by Elmwood Sensors Inc. per ES1297 Rev - ESA 3702 Issue 2A and Sepel P.O.250160CGS-1.

2.0 **NOMENCLATURE:**

3200 switch, thermostatic (bimetallic), subminiature, Type 1, Class 4, hermetically sealed, single pole, single throw (SPST), ten (10) units were tested, six (6) for Electrical Measurements and four (4) for Assembly Capability Tests.

3.0 **ELMWOOD SENSORS' PART NUMBER(S):**

3200-2-678

4.0 **ALCATEL PART NUMBER(S):**

370200101CMLM04(2)10(2)70K1

5.0 **TEST SAMPLES:**

Ten (10) samples SN00063, SN00064, SN00068, SN00072, SN00074, SN00075 (non-destructive) and SN00060, SN00067, SN00081 and SN00124 (destructive) were randomly selected from the completed production lots.

6.0 OPERATING TEMPERATURES:

Open: -21.0° F +/-1.7
Close: -27.0° F +/-1.7

7.0 TEST PROCEDURE:

The testing was performed as specified in ES1297 Rev – test procedure for Sepel and ESA 3702 Issue 2A LAT3.

SUMMARY OF "LAT3" INSPECTION

	Serial Numbers 3200-2-678					
	00060	00067	00081	00124		
GROUP "A"	P	P	P	P		
"LAT3" INSPECTION						
"Destructive"						
Solderability	P	P	P	P		
Terminal Strength	P	P	P	P		
Hermetic Seal	P	P	P	P		
"Non Destructive Testing"	00063	00064	00068	00072	00074	00075
Creepage	P	P	P	P	P	P
Response Time	P	P	P	P	P	P
Electrical and Thermoelectrical Measurements	P	P	P	P	P	P
External Visual Inspection	P	P	P	P	P	P

ELMWOOD SENSORS, INC. 500 NARRAGANSETT PARK DRIVE PAWTUCKET, RI 02861-4325 401/727-1300	TITLE: LAT 3 TEST REPORT FOR SEPEL, P O NO 250160CGS-1	CODE IDENT. NO 14604 REPORT NO. QCR-2692B SHEET:

ESA/SCC LOT ACCEPTANCE TESTS AND PROCEDURES FOR ALENIA TO ESA/SCC REQUIREMENTS

CUSTOMER

Alenia

MANUFACTURER

Elmwood Sensors, Inc
500 Narragansett Park Drive
Pawtucket, RI 02861

NOMENCLATURE

Switch, Thermostats, SPST
Hermetically Sealed per ESA/SCC 3702

APPLICABLE DOCUMENTS

Alenia Specification	MLM-SAR-A1-004
ESA/SCC	20100 21700 22800 24600 3702 3702/001
MIL-S-24236 MIL-STD-202	
ESI Specification	PS2043-1 PS2045 PS2046 PS2047 PS2048 PS2205-2 QAS8043 SR243 TSD141

CONTENTS

1.0 SCOPE

2.0 GENERAL REQUIREMENTS

3.0 SWITCHES TO BE TESTED

4.0 QUANTITY TO BE TESTED

5.0 TEST EQUIPMENT

6.0 INSPECTION SEQUENCE

7.0 LOT ACCEPTANCE TEST

8.0 DATA REQUIREMENTS

1.0 **SCOPE**

1.1 This specification covers the procedures and requirements for Lot Acceptance Testing (LAT) as specified in ESA/SCC 3702, Detail Specification 3702/001 and Amendment MLM-SAR-A1-004.

2.0 **GENERAL REQUIREMENTS**

2.1 Switches which are submitted to Lot Acceptance Testing shall be randomly selected from a lot which has successfully met the requirements for Final Production tests and Run-In and Electrical tests per Elmwood Sensors Specification SR243

2.2 **Action in Case of Defectives**. In the event of a failure of any sample switch submitted to Lot Acceptance Testing, ESI shall notify the customer of the failure and shall take action to determine the cause of failure and its impact on the parent lot. Customer shall be notified within two (2) working days once failure is confirmed.

2.3 **Disposition of LAT Samples**. Level 1, Level 2 and Level 3 Assembly Capability Test testing are considered to be destructive and switches so tested shall not form part of the deliverable flight hardware. Samples from Level 3 Electrical Measurements testing which successfully meet the requirements may be delivered as flight hardware Documentation package of deliverable flight hardware shall identify LAT 3 Electrical Measurement Serial Numbers.

LAT samples from Level 1, Level 2 and Level 3 Assembly Capability Test testing shall be painted with a red strip and identified as "LAT Samples - Level ___ Testing" and shipped to the customer with the Lot Acceptance Test Reports.

2.4 **Lot Acceptance Test Reports**. Unless otherwise specified, one (1) copy of the LAT Report, certified by a responsible ESI official, shall be submitted to the customer

2.5 **Order of Precedence**

2.5.1 Purchase Order

2.5.2 This Specification

2.5.3 Reference Specification

3.0 **SWITCHES TO BE TESTED**

3.1 ESA/SCC Specification and Alenia SAR Operating Temperatures and ESI P/N shall be defined by the ESI internal TSD Document and the Purchase Order

4.0 **QUANTITY TO BE TESTED**

4.1 Unless otherwise specified in the Purchase Order, the quantities to be tested shall conform to the quantities defined in the ESA/SCC Generic Specification 3702 for Level 1, Level 2 or Level 3 testing.

Level 1 - 31 switches
Level 2 - 19 switches
Level 3 - 10 switches

5.0 **TEST EQUIPMENT**

5.1 Unless otherwise specified, the instruments and test equipment to control or monitor test parameters shall:

5.1.1 Conform to laboratory standard whose calibration is traceable to the prime standards of U. S. National Institute of Science and Technology.

5.1.2 Be calibrated and controlled in accordance with MIL-STD-45662

5.1.3 Be appropriate to measuring the parameter involved.

5.2 **Instrumentation**. Instrumentation used to measure specified parameters of the unit shall have the following accuracies:

5.2.1 Voltage ± 2%

5.2.2 Current ± 2%

5.2.3 Resistance ± 0.5%

5.2.4 Temperature ± 1°F

6.0 **INSPECTION SEQUENCE**

6.1 **LEVEL 1 (31 Switches Total)**

6.1.1 **Environmental/Mechanical Subgroup (12 Switches)**

6.1.1.1 **6 Switches**

6.1.1.1.1 Rapid change of temperature

6.1.1.1.2 Vibration 1/

6.1.1.1.3 Shock 1/

6.1.1.1.4 Seal Test

6.1.1.1.5 Electrical and Thermoelectrical Measurements

6.1.1.1:6 External Visual Inspection

6.1.1.2 **6 Switches**

6.1.1.2.1 Permanence of Marking

6.1.1.2.2 Damp Heat 1/

6.1.1.2.3 Seal Test

6.1.1.2.4 Electrical and Thermoelectrical Measurements

6.1.1.2.5 External Visual Inspection

6.1.2 **Endurance Subgroup (9 Switches)**

6.1.3 **Electrical Subgroup (10 Switches)**

6.2 **LEVEL 2 (19 Switches Total)**

6.2.1 **Electrical Subgroup (10 Switches)**

6.2.2 **Endurance Subgroup (9 Switches)**

6.2.2.1 Operating Life (6 Switches)

6.2.2.2 Overload (3 Switches)

6.2.2.3 Seal Test (9 Switches from 6.2.2.1 and 6.2.2.2 testing)

6.2.2.4 External Visual Inspection (9 Switches from 6.2.2.3 testing)

6.3 **LEVEL 3 (10 Switches Total)**

6.3.1 **Electrical Subgroup (10 Switches)**

6.3.1.1 **Electrical Measurements (6 Switches)**

6.3.1.1.1 Creepage

6.3.1.1.2 Response Time

6.3.1.1.3 Electrical and Thermoelectrical Measurements

6.3.1.1.4 External Visual Inspection

6.3.1.2 **Assembly Capability Tests (4 Switches)**

6.3.1.2.1 Solderability

6.3.1.2.2 Robustness of Terminals

6.3.1.2.3 Seal Test

1/ Test to be performed by an ESI approved test facility.

7.0 TESTING PROCEDURES

7.1 The tests herein shall be performed on specified serialized samples, chosen at random, from lots which have successfully passed the tests referenced in ESA/SCC 3702 Chart II and Chart III and amendments, as defined by the customer. Summary sheets for Run-In and Electrical Measurements for the selected serial numbers shall become part of the Final Lot Acceptance Test Report.

7.2 **Rapid Change of Temperature**. Switches shall be tested in accordance with MIL-STD-202, Method 107, -65°C to +175°C, 5 cycles for 30 minutes.

7.3 **Vibration**. Unless otherwise specified, the switch shall be subjected to vibration per MIL-STD-202, Method 204, with the following details:

Frequency range, severity: 10 - 2000 Hz, 1.5mm or 50g's (whichever is less)
2000 - 3000 Hz, 30g's

7.3.1 Electrical load during vibration testing shall be per MIL-STD-202, Method 310, unless otherwise specified.

7.3.2 Normally open contacts shall be monitored for contact closure exceeding 1.0 msec and normally closed contacts be monitored for contact opening exceeding 1.0 msec.

7.3.3 Axis of vibration shall be main axis and the two other perpendicular directions (total 3 axes) on each axis, half of the total time with open contacts and the other half with closed contacts.

7.3.4 Duration of test shall be two (2) hours in each of the three (3) axes

7.4 **Shock**. Unless otherwise specified, the switch shall be subjected to shock per MIL-STD-202, Method 213, Test Condition D

7.4.1 Electrical load during shock test shall be 28 VDC, 60mA, unless otherwise specified

7.4.2 Normally open contacts shall be monitored for contact closure exceeding 1.0 msec and normally closed contacts shall be monitored for contact opening exceeding 1.0 msec.

7.5 **Seal Test** When tested per ESI Specification PS2048, Method C, in accordance with MIL-S-24236, Paragraph 4.7.7.1, the switch shall meet the requirements of MIL-S-24236, Paragraph 3.12 (1×10^{-8} ATM cc/sec maximum). Gross Leak testing shall be performed per PS2048, Method A, in accordance with MIL-STD-202, Method 112, Condition A.

7.6 **Electrical and Thermoelectrical Measurements**

7.6.1 **Temperature Calibration & Repeatability Testing** Each switch shall have its operating temperature points determined per ESI Specification PS2043-1, in accordance with MIL-STD-24236. Total system accuracy used to measure temperature shall be ± 0 3°C. Rate of temperature change shall be 0.5°C per minute. All switches shall undergo three (3) consecutive operational cycles, measuring and recording closing and opening temperatures during each cycle. Set points shall be determined by averaging all three (3) cycles. In all cases, all three (3) cycles must remain within the specified temperature tolerances and the difference between the readings shall be no greater then 1°C. Results shall be compared to the readings indicated in the Run-In and Electrical Measurement Summary Sheet. The average of the three readings shall be within ±1°C and meet the requirements of Table I herein.

7.6.2 **Voltage Proof** When tested per ESI Specification PS2046 at 1000 VAC between contacts and ground and 100 VAC between open contacts, in accordance with MIL-S-24236, Paragraph 4.7 8.1, the switch shall meet the requirements of MIL-S-24236, Paragraph 3.13.

7.6.3 **Insulation Resistance**. When tested per ESI Specification PS2045, in accordance with MIL-S-24236, Paragraph 4 7 9 at 100 VDC, the switch shall meet the requirements of MIL-S-24236, Paragraph 3.14.

7.6.4 **Contact Resistance** When tested per ESI Specification PS2047, in accordance with MIL-S-24236, Paragraph 4.7 10 at 6 VDC/100 milliamps, the initial Contact Resistance shall not exceed 25 milliohms Contact resistance during operating life shall not exceed 100 milliohms, and after overload cycling shall not exceed 50 milliohms.

7.7 **External Visual Inspection** When inspected for design, construction and workmanship, the switch shall meet the requirements of ESA Specification ESA/SCC 20500 and the applicable ESI envelope drawing

7.8 **Permanence of Marking** When tested per ESA/SCC Specification 24800, the switch shall remain legible with all marking intact.

7.9 **Damp Heat (Steady State)** Switches shall be tested per MIL-STD-202, Method 103, Test Condition A Polarization voltage is not applicable.

7.10 **Operating Life** Switches shall be tested per Elmwood Sensors Specification QAS8043. Electrical Load and Life Cycle requirements shall be in accordance with the customer purchase order

7.10.1 Cycle rate shall not exceed six (6) cycles per minute.

7.10.2 For 100,000 cycle requirements, measurements during Endurance Testing (operating life) shall be made at 0, 25,000, 50,000 and 100,000 cycle intervals.

7.10.3 For 20,000 cycle requirements, measurements during Endurance Testing (operating life) shall be made at 0, 250, 1000, 10,000 and 20,000 cycle intervals

11/39

7.10.4 Changes in operating temperature parameters shall be referenced to the 0 cycle data. Zero cycle data can be satisfied from the Summary Sheet supplied per Para. 7.0 herein

7.10.5 Measurements During Endurance Testing (operating life):

Voltage Proof (ref Para. 7.6.2)
Insulation Resistance (ref. Para. 7.6.3)
Contact Resistance (ref. Para. 7.6.4)
Temperature Calibration and Repeatability (ref. Para. 7.6.1)

TABLE I

Allowable drift during Endurance Testing (operating life):

TEMP RANGE	DIFFERENTIAL	LIMITS
-30 Deg. C ≤ T ≤ 56 Deg. C	< 16.67 Deg. C	± 2 Deg. C
-30 Deg. C ≤ T ≤ 56 Deg. C	> 16.67 Deg. C	± 5 Deg. C
-30 > T > 56 Deg. C	< 16.67 Deg. C	± 3 Deg. C
-30 > T > 56 Deg. C	> 16.67 Deg. C	± 5 Deg. C

7.11 **Overload** Overload testing should be performed per MIL-S-24236, Para. 4.7.18. Switches shall meet the requirements of MIL-S-24236 Para. 3.23.

7.11.1 **Measurements After Overload Testing**

Contact Resistance (Ref. Para. 7.6.4)
Temperature Calibration and Repeatability (Ref. Para. 7.6.1)

7.12 **Response Test**

7.12.1 **Procedure**

7.12.1.1 Thermostats operating temperatures shall be determined by the average temperatures noted in the Run-In and Electrical Measurements

$\bar{X}$ Open = TNF °C

$\bar{X}$ Close = TNR °C

7.12.1.2 To perform Thermal Response testing, three (3) liquid (oil) baths are required. One bath temperature is to stabilized and maintained at BO temperature Second bath is to be maintained at B1 temperature and third bath is to be maintained at B2 temperature

B0 = (TNR - Close Temperature Tolerance) - 10°C
B1 = TNF - 10°C
B2 = TNF + 10°C

12/39

7 12 1.3 The thermostats shall be mounted on an appropriate fixture so that continuity of each thermostat being tested can be monitored. A stop watch shall be used to record the response time.

7 12.1.4 Thermostats to be tested shall be placed in the B0 bath and allowed to soak for a minimum of one (1) minute.

7.12.1.5 The thermostats shall be then immediately transferred to the B1 bath and allowed to soak for five (5) minutes minimum.

7 12.1.6 The thermostats shall then be immediately transferred to the B2 bath and the stop watch shall be started to record the response time.

7.12.1.7 Response Time shall be determined when the switches indicate a change of state by changing continuity

7 12 1.8 Thermostats shall then be returned to bath B0 and the test per Paragraph 7.4.1.5 through Paragraph 7.4.1.6 shall be repeated for two (2) additional cycles.

7.12.1.9 Thermal response data shall be recorded and become part of Group "B" Test Report Maximum acceptable response time is twenty (20) seconds.

7 12.2 **Example**:

Open (Average) temperature per Group "A" Data = 30°C

Close (Average) temperature per Group "A" Data = 20°C

Specification Tolerance ± 3°C on Open & Close Temperatures

Hence:

TNF = 30°C TRN = 20°C

B0 (Bath) = (TNR - 3) - 10 = 7°C
B1 (Bath) = TNR - 10 = 20°C

7°C	20°C	40°C
Oil	Oil	Oil
B0	B1	B2

7 13 **Solderability**. Switches tested per MIL-STD-202, Method 208, with the details and exceptions of MIL-S-24236, Para. 4 7 2 shall meet the requirements of MIL-S-24236, Para 3.7. Marking shall remain legible.

7.14 **Robustness of Terminals** When tested per MIL-STD-202, Method 211, Condition A, with the details and exceptions of MIL-S-24236, Para 4 7 12, the switch shall exhibit no evidence of damage which could affect the integrity or operation of the switch.

13/39

7.15 **Creepage**. When tested per ESI Specification PS2205-2, in accordance with MIL-S-24236, Paragraph 4 7.4 for three (3) consecutive cycles, the switch shall meet the requirements of MIL-S-24236, Paragraph 3.9, except Contact Transfer time shall not exceed five (5) milliseconds.

8.0 DATA REQUIREMENTS

8.1 The report shall include the following as a minimum:

1. Cover sheet.
2. Final Production Test and Run-In and Electrical Summary Sheets for samples tested.
3. Failure Analysis Report (when required).
4. Outside lab reports.
5. Lot Acceptance Test Data
6. ESA/SCC Component Number
7. Mfg Name
8. Lot Identification
9. Date of establishment of this document
10. Page numbers

14/39

REVISIONS

REV LEVEL	ECN NUMBER	DESCRIPTION	DATE	APPROVALS
-	23079	FIRST ISSUE	8/14/97 8/14/97	

REV	EC	3079 8/14/97
-		

BY	DATE 7/18/97	TITLE ESA/SCC LOT ACCEPTANCE TESTS & PROCEDURES FOR ALENIA IO ESA/SCC REQUIREMENTS	CODE IDENT. NO. 14604
CH	7/21/97		DWG NO ES1297
APP	7/18/97	2	
	7/18/97	3	SH. 11 OF 12

Elmwood Sensors Inc

PF 259

REVISIONS

REV LEVEL	ECN NUMBER	DESCRIPTION	DATE	APPROVALS

16/39

REV	ECN	
-	079	8/14/97

BY	DATE	TITLE ESA/SCC LOT ACCEPTANCE TESTS & PROCEDURES FOR ALENIA TO ESA/SCC REQUIREMENTS	CODE IDENT. NO. 14604
CH	7/21/97		DWG NO ES1297
APP	7/18/97	2	
1	7/18/97	3	SH. 12 OF 12

Elmwood Sensors Inc

PF 259

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C4L1904 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 000160

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.8 °C	-20.6	-27.1		✓	
		x̄ Close -27.0 °C	-20.9	-27.0			
		x̄ Diff N/A °C	-20.6	-27.1			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.8 ΔT 0.9 °C	-20.7	-27.1		✓	
		x̄ Close -27.1 ΔT 0.1 °C	-19.7	-27.1			
		x̄ Diff N/A ΔT N/A °C	-19.6	-27.1			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	10 mΩ 10 mΩ 10 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C4L4M04 (2)10 (2) 70K1 LOT DATE CODE: 05/46

P.O NO: 250160CGS-1 SERIAL NO. 000607

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.1 °C	-20.3	-26.9		✓	
		x̄ Close -26.9 °C	-19.7	-26.9			
		x̄ Diff N/A °C	-20.3	-26.9			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.1 ΔT 0.3 °C	-20.5	-27.2		✓	
		x̄ Close -27.2 ΔT 0.3 °C	-20.0	-27.2			
		x̄ Diff N/A ΔT N/A °C	-20.6	-27.2			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	8 mΩ 8 mΩ 9 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243
Sheet 8 of 11

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101CALM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00051

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA	ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A	✓	
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING		OP / CL / DIFF	✓	
		x̄ Open -19.6 °C	-19.9 / -26.6		
		x̄ Close -26.6 °C	-19.4 / -26.6		
		x̄ Diff N/A °C	-19.6 / -26.6		
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A	✓	
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING		OP / CL / DIFF	✓	
		x̄ Open -20.2 ΔT 0.6 °C	-20.8 / -26.8		
		x̄ Close -26.8 ΔT 0.2 °C	-20.1 / -26.8		
		x̄ Diff N/A ΔT N/A °C	-19.7 / -26.8		
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A	✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A	✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A	✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	10 mΩ 9 mΩ 9 mΩ	✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A	✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A	✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101CHL-M04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00124

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.9 °C	-20.8	-26.0		✓	
		x̄ Close -26.0 °C	-21.0	-26.0			
		x̄ Diff N/A °C	-20.9	-25.9			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.0 ΔT 0.1 °C	-20.8	-26.2		✓	
		x̄ Close -26.2 ΔT 0.2 °C	-21.3	-26.1			
		x̄ Diff N/A ΔT N/A °C	-20.9	-26.2			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	9 mΩ			✓	
			10 mΩ				
			9 mΩ				
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Chartand

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

20/39

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 CALM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00063

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.8 °C	-20.8	-37.4		✓	
		x̄ Close -37.4 °C	-20.1	-37.4			
		x̄ Diff N/A °C	-19.6	-37.4			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21 ΔT 0.3 °C	-21.5	-27.8		✓	
		x̄ Close -37.5 ΔT 0.4 °C	-20.9	-27.8			
		x̄ Diff N/A ΔT N/A °C	-20.8	-27.8			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ 8 mΩ 8 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

21/39

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101CMLM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 000641

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA	ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A	✓	
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.2 °C x̄ Close -27.1 °C x̄ Diff N/A °C	OP / CL / DIFF -20.6 / -26.9 -20.0 / -26.9 -20.0 / -27.3	✓	
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A	✓	
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.6 ΔT 0.4 °C x̄ Close -27.1 ΔT 0.3 °C x̄ Diff N/A ΔT N/A °C	OP / CL / DIFF -20.4 / -27.2 -20.3 / -27.4 -20.9 / -27.6	✓	
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A	✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A	✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A	✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	8 mΩ 8 mΩ 9 mΩ	✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A	✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A	✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

22/39

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370-200101, CALM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 000068

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -28.5 °C	-28.4	-28.2		✓	
		x̄ Close -28.2 °C	-28.1	-28.7			
		x̄ Diff N/A °C	-21.1	-28.2			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -28.3 ΔT 0.2 °C	-28.3	-28.2		✓	
		x̄ Close -28.3 ΔT 0.1 °C	-28.0	-28.4			
		x̄ Diff N/A ΔT N/A °C	-28.1	-28.3			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	7 mΩ 8 mΩ 9 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 CMLM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 000712

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.0 °C	-20.8	-22.4		✓	
		x̄ Close -22.2 °C	-21.7	-22.0			
		x̄ Diff N/A °C	-20.7	-22.1			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.7 ΔT 0.7 °C	-21.8	-22.6		✓	
		x̄ Close -22.5 ΔT 2.3 °C	-21.7	-22.6			
		x̄ Diff N/A ΔT N/A °C	-21.7	-22.3			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	7 mΩ 6 mΩ 6 mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101C24LM04 (2) 10 (2) 70K1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00074

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA			ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A			✓	
			OP	CL	DIFF		
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.1 °C	-20.9	-26.3		✓	
		x̄ Close -26.3 °C	-21.2	-26.3			
		x̄ Diff N/A °C	-21.1	-26.2			
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A			✓	
			OP	CL	DIFF		
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -21.9 ΔT 0.8 °C	-22.1	-26.7		✓	
		x̄ Close -26.7 ΔT 0.4 °C	-21.7	-26.7			
		x̄ Diff N/A ΔT N/A °C	-21.9	-26.7			
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A			✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A			✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A			✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max. @ 6 VDC/100mA	___ mΩ			✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A			✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A			✓	

ESI REPRESENTATIVE: Doreen Charlaand

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

25/39

RUN-IN AND ELECTRICAL MEASUREMENT SUMMARY SHEET

ESI P/N: 3200-2-678 REV. LEVEL: N/A

CUSTOMER P/N: 370200101 0441984 (2)10 (2) 7GK1 LOT DATE CODE: 05/46

P.O. NO: 250160CGS-1 SERIAL NO. 00075

REF. PARA.	TEST OR EXAMINATION	PARAMETERS	VARIABLE DATA	ACC	REJ
6.2	RAPID CHANGE OF TEMPERATURE	5 Cycles -65°C to +125°C	N/A	✓	
6.3	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -19.7 °C x̄ Close -27.2 °C x̄ Diff N/A °C	OP / CL / DIFF -19.8 / -27.2 -19.8 / -27.2 -19.6 / -27.2	✓	
6.4	RUN-IN	500 Cycles @ 6 VDC/ 100mA	N/A	✓	
6.5	TEMPERATURE CALIBRATION AND REPEATABILITY TESTING	x̄ Open -20.3 ΔT 0.6 °C x̄ Close -22.3 ΔT 0.1 °C x̄ Diff N/A ΔT N/A °C	OP / CL / DIFF -20.6 / -22.3 -20.4 / -22.4 -19.8 / -22.3	✓	
6.6	CREEPAGE	5msec Max @ 500 VDC, 10mA max.	N/A	✓	
6.7	VOLTAGE PROOF	1000 VAC T-C 100 VAC T-T (500μA)	N/A	✓	
6.8	INSULATION RESISTANCE	500 Megohms @ 100 VDC T-C and T-T	N/A	✓	
6.9	CONTACT RESISTANCE	25 Milliohms Max @ 6 VDC/100mA	9 mΩ 9 mΩ 9 mΩ	✓	
6.10	SEAL TEST	1 x 10^{-8} ATM CC/SEC	N/A	✓	
6.11	EXTERNAL VISUAL INSPECTION AND DIMENSIONAL CHECK	Per drawing and referenced paragraph	N/A	✓	

ESI REPRESENTATIVE: Doreen Charland

DATE: 2/24/06

ACCEPT: ✓

REJECT:

SR-243

Sheet 8 of 11

26/39

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Creepage** **Part No.** 3200-2-678

Remarks: Per ES1297 , paragraph 7.15

Creepage
Para. 7.15

SPEC LIMITS: 5 Milliseconds Max.

SERIAL NUMBERS:

00063	PASS
00064	PASS
00068	PASS
00072	PASS
00074	PASS
00075	PASS

Data Verified by: Paul D'Andrea Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Response Time** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.12

Response Time
Para. 7.12

SPEC LIMITS: 20 seconds max

SERIAL NUMBERS:

	CYCLE 1	CYCLE 2	CYCLE 3
00063	8	9	7
00064	10	9	9
00068	7	7	7
00072	10	10	9
00074	9	9	8
00075	9	9	8

Data Verified by: Paul D'Andrea Date: 2/24/00

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: EADS ASTRIUM UK **Lab Test No.** QCR-2692B

Test: **Calibration** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.6.1

Calibration
Para. 7.6.1

SPEC LIMITS:
Open: *-21 ± 1.7° C*
Close: *-22 ± 1.7°C*
Group A-B ΔT +/1 °C Max

SERIAL NUMBERS:

	Open	*Open*	*Open*	*Avg.*	*Close*	*Close*	*Close*	*Avg.*
00063	-22.2	-21.8	-20.9	-22.0	-28.2	-27.7	-27.8	-27.9
00064	-20.8	-20.5	-20.4	-20.6	-27.3	-27.3	-27.2	-27.3
00068	-19.9	-19.8	-19.9	-19.9	-28.2	-28.3	-28.3	-28.3
00072	-21.9	-21.6	-21.4	-21.8	-27.5	-27.6	-27.3	-27.5
00074	-21.4	-21.8	-21.7	-21.6	-26.9	-26.8	-26.8	-26.9
00075	-20.4	-20.2	-20.2	-20.3	-27.4	-27.4	-27.4	-27.4

Group A-B	ΔTOpen	Δ TClose
00063	0.7	0.1
00064	0.0	0.1
00068	0.4	0.0
00072	0.1	0.0
00074	0.3	0.2
00075	0.0	0.1

Data Verified by: Paul D'Andrea Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: EADS ASTRIUM UK **Lab Test No.** QCR-2692B

Test: **Calibration** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.6.1

Calibration
Para. 7.6.1

SPEC LIMITS:
Open: *-21 ± 1.7° C*
Close: *-27 ± 1.7°C*
Group A-B ΔT +/1 °C Max

SERIAL NUMBERS:

	Open	*Open*	*Open*	*Avg.*	*Close*	*Close*	*Close*	*Avg.*
00063	-22.2	-21.8	-20.9	-22.0	-28.2	-27.7	-27.8	-27.9
00064	-20.8	-20.5	-20.4	-20.6	-27.3	-27.3	-27.2	-27.3
00068	-19.9	-19.8	-19.9	-19.9	-28.2	-28.3	-28.3	-28.3
00072	-21.9	-21.6	-21.4	-21.8	-27.5	-27.6	-27.3	-27.5
00074	-21.4	-21.8	-21.7	-21.6	-26.9	-26.8	-26.8	-26.9
00075	-20.4	-20.2	-20.2	-20.3	-27.4	-27.4	-27.4	-27.4

Group A-B	ΔTOpen	Δ TClose
00063	0.7	0.1
00064	0.0	0.1
00068	0.4	0.0
00072	0.1	0.0
00074	0.3	0.2
00075	0.0	0.1

Data Verified by: Paul Andreta Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Voltage Proof** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.6.2

Voltage Proof
Para. 7..6.2

SPEC LIMITS: No flashover, arcing or current flow in excess of 500 microamperes

SERIAL NUMBERS:

00063	PASS
00064	PASS
00068	PASS
00072	PASS
00074	PASS
00075	PASS

Data Verified by: Paul D Andrews Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Insulation Resistance** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.6.3

Insulation Resistance
Para. 7.6.3

SPEC LIMITS: 500 megaohms min

SERIAL NUMBERS:

00063	PASS
00064	PASS
00068	PASS
00072	PASS
00074	PASS
00075	PASS

Data Verified by: Paul Mandrita Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Contact Resistance** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.6.4

Contact Resistance
Para. 7.6.4

SPEC LIMITS: InitialContact Resistance not to exceed 25 milliohms

SERIAL NUMBERS:

00063	8	8	8
00064	8	7	8
00068	8	8	8
00072	8	9	8
00074	9	10	10
00075	8	8	8

Data Verified by: Paul V Andrieta Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **External Visual Inspection** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.7

External Visual Inspection
Para. 7.7

SPEC LIMITS:

SERIAL NUMBERS:

00063	PASS
00064	PASS
00068	PASS
00072	PASS
00074	PASS
00075	PASS

Data Verified by: Paul J Andreto Date: 2/24/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Solderability** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.13

Solderability per Para 7.13

SPEC LIMITS:

SERIAL NUMBERS:

00060	PASS
00067	PASS
00081	PASS
00124	PASS

Data Verified by: Paul D Andrews Date: 2/24/06

SYPRIS®
TEST & MEASUREMENT

CERTIFICATE OF COMPLIANCE

Honeywell Sensor Systems
500 Narragansett Park Drive
Pawtucket, RI 02861

Date	:	01/20/06
PO No	:	2874135
Job No	:	T-41526-11
Quantity	:	4
Part No	:	3200-2-678
Item ID	:	Thermostats

Sypris Test & Measurement certifies that the above referenced items have been subjected to the specified environmental test set forth in the above referenced purchase order

TEST	CONDITIONS	QUANTITY ACCEPTED	QUANTITY REJECTED
Solderability	Mil-Std-202G, Method 208 ANSI/J-STD-002B, Test C Wrapped Wire Test 8 Hour Steam Conditioning Solder Bath = +245°C	4	0

Serial Numbers Tested: 00060, 00067, 00081, 00124
Test completed on 01/19/2006 No visible physical damage or deterioration noted

Prepared by: James D. Ray

Approved by: Steven Soutiere

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF SYPRIS TEST & MEASUREMENT.
All the equipment used in the performance of the testing referenced in this report meets or exceeds the tolerances specified within the stated methods

Leaders in Testing Technology since 1956
CONSISTENT EXCELLENT SERVICE GUARANTEED
53 SECOND AVENUE, BURLINGTON MA. 01803
PHONE: 781-272-9050 FAX: 781-272-8184
www.sypris.com

36/39

CERTIFICATE OF COMPLIANCE

Job No : T-41526-11

L I S T O F A P P A R A T U S

DESCRIPTION	MANUFACTURER/MODEL NUMBER
ITEM # 1 STEAM AGING SYSTEM	INVENTORY ID: N99-230 ROBOTIC PROCESS SYSTEMS ST-2
ACCY: CONTROL +/- 2*C	CAL:09/28/2005 DUE:03/28/2006
ITEM # 2 SOLDERABILITY TESTER	INVENTORY ID: N99-229 ROBOTIC PROCESS SYSTEMS 202TL
ACCY: CONTROL +/- 3*C	CAL:09/15/2005 DUE:03/15/2006

All the equipment used in the performance of the testing referenced in this report, meets or exceeds the tolerances specified within the stated test methods

ELMWOOD SENSORS, INC.
QUALITY ASSURANCE LABORATORY
EVALUATION DATA SHEET

Customer: Sepel **Lab Test No.** QA6672

Test: Terminal Strength **Part No.** 3200-2-678

Remarks: Per ES1297, Para. 6.3.1.2

SPEC LIMITS:	X 4.5 lbs 1 min.	Y 4.5 lbs. 1 min.	Z 4.5 lbs. 1 min.	
SERIAL NUMBERS:				**Visual Exam:**
00060	PASS	PASS	PASS	PASS
00067	PASS	PASS	PASS	PASS
00081	PASS	PASS	PASS	PASS
00124	PASS	PASS	PASS	PASS

Data Verified by: Paul D Andrews **Technician:** Donna Cole
Date: 2/2/06

ELMWOOD SENSORS, INC.
PRECISION DIVISION
EVALUATION DATA SHEET

Customer: SEPEL **Lab Test No.** QCR-2692B

Test: **Hermetic Seal** **Part No.** 3200-2-678

Remarks: Per ES1297, paragraph 7.5

Hermetic Seal per Para 7.5

SPEC LIMITS:

SERIAL NUMBERS:

00060	PASS
00067	PASS
00081	PASS
00124	PASS

Data Verified by: Raul D'Andrieta Date: 2/24/06