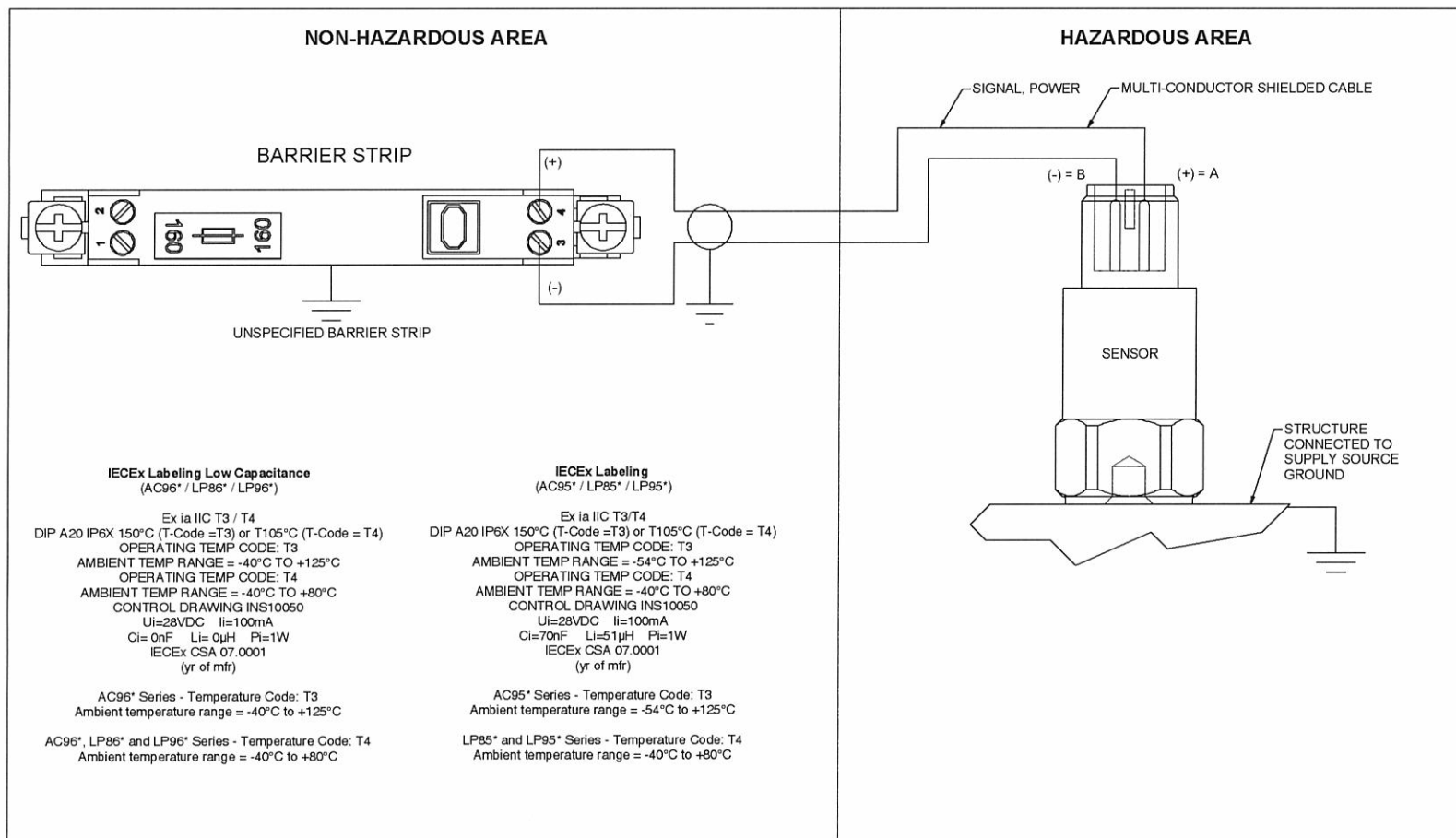




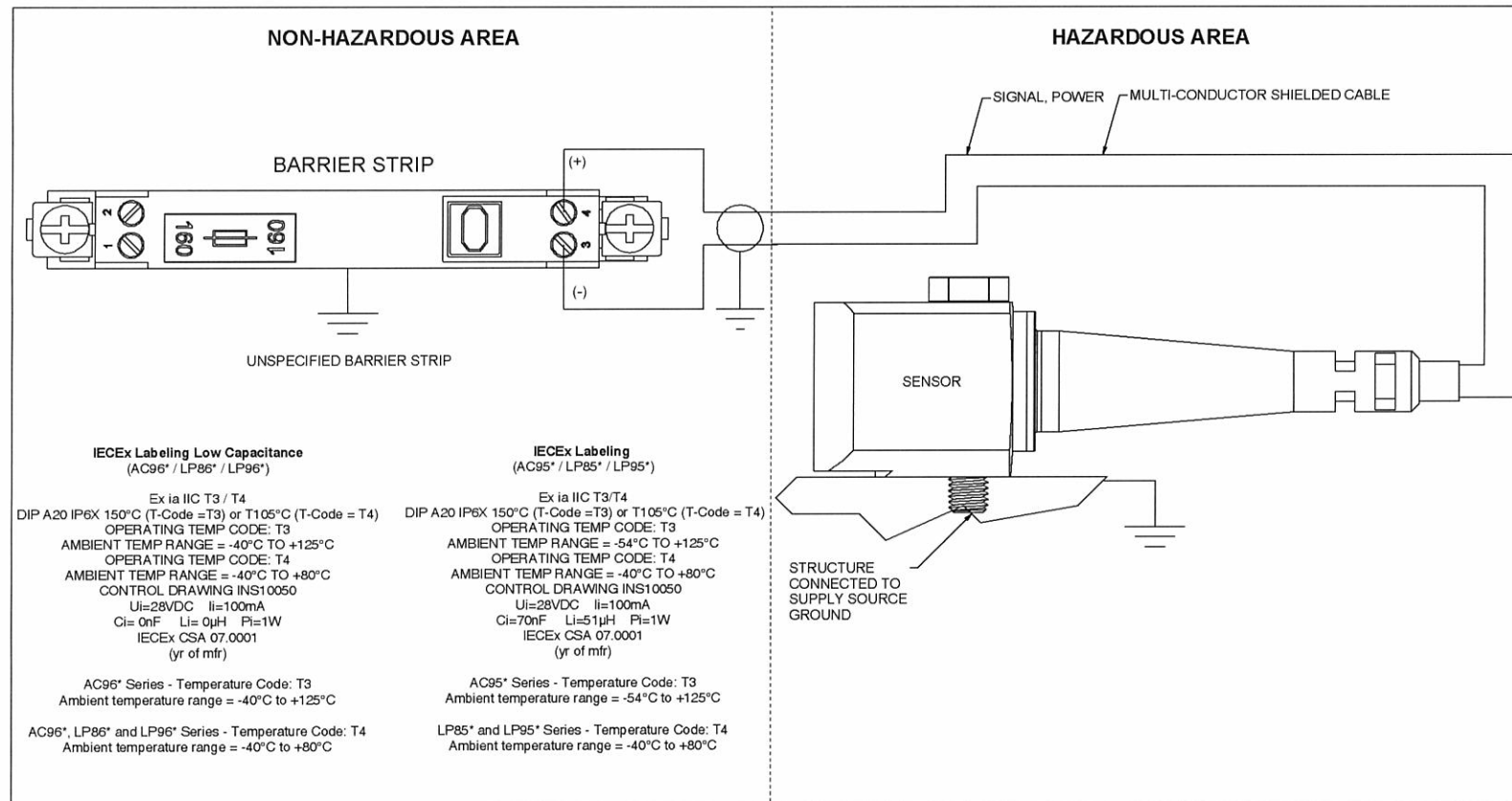
NOTES:
- DO NOT PARALLEL ASSOCIATE APPARATUS UNLESS PERMITTED BY ASSOCIATED APPARATUS APPROVAL
- CABLE CAPACITANCE & INDUCTANCE PLUS THE I.S. APPARATUS UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) MUST NOT EXCEED THE ALLOWED CAPACITANCE (Ca) AND INDUCTANCE (La) INDICATED ON THE ASSOCIATED APPARATUS
[(C_{cable} + Ci < Ca) & (L_{cable} + Li < La)]

CTC CONFIDENTIAL

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

 VIBRATION ANALYSIS HARDWARE		PART #:	INS10050	REV	A
		DESCRIPTION:			IECEx INTRINSIC SAFE CONTROL DRAWING
DRAWN BY	DATE	MATERIAL	TOLERANCES (UNLESS SPECIFIED)	SHEET	
BPS	3/14/2007	N/A	XXX ± .005 XX ± .01 ANGLE ± 2° BREAK ALL SHARP EDGES 0.10 MAX.	1/2	
APPROVED BY	DATE	NOT DRAWN TO SCALE			
SAS	3/14/2007				

A	UPDATE TO LOW CAPACITANCE/DUST APPROVAL	-	DMG	SAS	1/14/2010
REV	DESCRIPTION	ECO#	DESIGNER	APPROVED	APPROVAL DATE



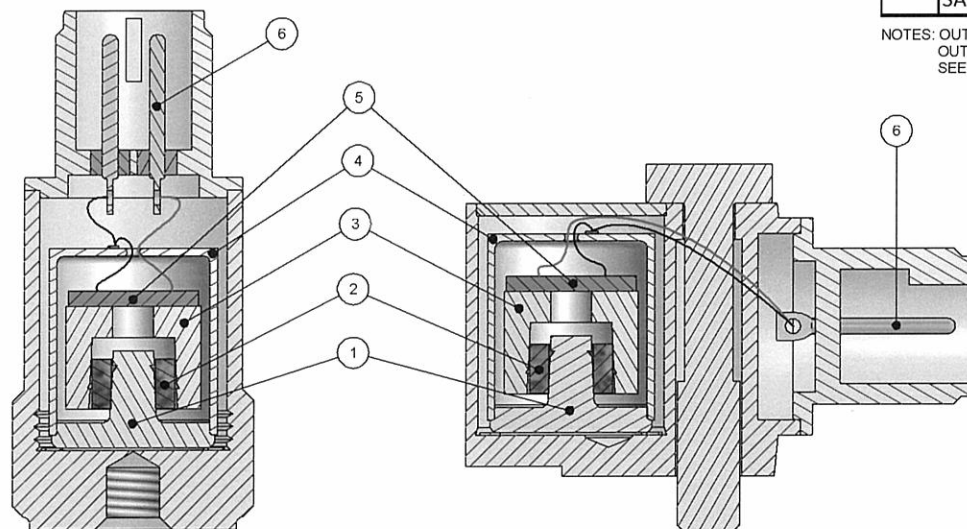
NOTES:
- DO NOT PARALLEL ASSOCIATE APPARATUS UNLESS PERMITTED BY ASSOCIATED APPARATUS APPROVAL
- CABLE CAPACITANCE & INDUCTANCE PLUS THE I.S. APPARATUS UNPROTECTED CAPACITANCE (Ci) AND INDUCTANCE (Li) MUST NOT EXCEED THE ALLOWED CAPACITANCE (Ca) AND INDUCTANCE (La) INDICATED ON THE ASSOCIATED APPARATUS
[(C_{cable} + Ci < Ca) & (L_{cable} + Li < La)]

A	UPDATE TO LOW CAPACITANCE/DUST APPROVAL	-	DMG	SAS	1/14/2010
REV	DESCRIPTION	ECO#	DESIGNER	APPROVED	APPROVAL DATE

CTC CONFIDENTIAL

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

 VIBRATION ANALYSIS HARDWARE		PART #:		INS10050	REV A
		DESCRIPTION: IECEx INTRINSIC SAFE CONTROL DRAWING			
DRAWN BY BPS	DATE 3/14/2007	MATERIAL N/A	TOLERANCES (UNLESS SPECIFIED) XXX ± .005 XX ± .01 ANGLE ± 2° BREAK ALL SHARP EDGES Ø10 MAX		SHEET 2 / 2
APPROVED BY SAS	DATE 3/14/2007				NOT DRAWN TO SCALE



AC/LP SERIES - TOP EXIT

AC/LP SERIES - SIDE EXIT

PARTS LIST			
ITEM	DESCRIPTION	QTY	REFERENCE/NOTES
1	PEDESTAL	1	
2	PIEZOELECTRIC MATERIAL	1	600 pF max (.6 nF)
3	SEISMIC MASS	1	
4	PROTECTIVE CASE	1	
5	PC BOARD	1	
6	HERMETICALLY SEALED CONNECTOR PINS	2	
	LABELING, INTRINSICALLY SAFE, HAZARDOUS AREA	0	INS10025

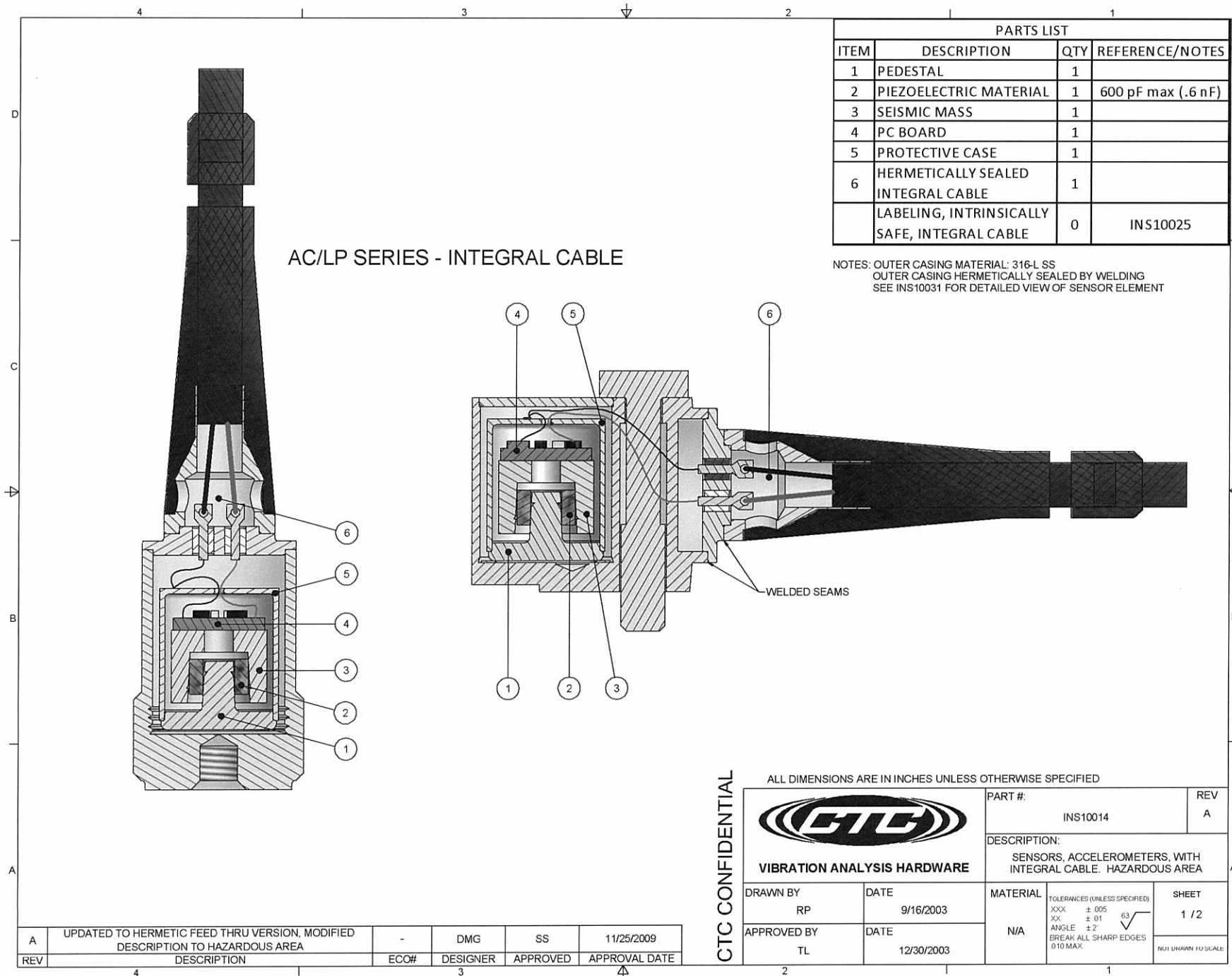
NOTES: OUTER CASING MATERIAL: 316-L SS
OUTER CASING HERMETICALLY SEALED BY WELDING
SEE INS10031 FOR DETAILED VIEW OF SENSOR ELEMENT

B	CHANGE DESCRIPTION TO HAZARDOUS AREA	-	DMG	SS	11/25/2009
A	UPDATE LP SERIES INTERNAL SKETCH	-	RP	TL	9/16/2003
REV	DESCRIPTION	ECO#	DESIGNER	APPROVED	APPROVAL DATE

CTC CONFIDENTIAL

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

 VIBRATION ANALYSIS HARDWARE		PART #:	INS10013	REV	B
		DESCRIPTION:	SENSORS, 2 PIN CONNECTOR, HAZARDOUS AREA		
DRAWN BY	RP	DATE	9/16/2003	MATERIAL	N/A
APPROVED BY	TL	DATE	9/16/2003	TOLERANCES (UNLESS SPECIFIED)	XXX ± .005 XX ± .01 ANGLE ± 2° BREAK ALL SHARP EDGES .010 MAX
				SHEET	1 / 1



PARTS LIST			
ITEM	DESCRIPTION	QTY	REFERENCE/NOTES
1	PEDESTAL	1	
2	PIEZOELECTRIC MATERIAL	1	600 pF max (.6 nF)
3	SEISMIC MASS	1	
4	PC BOARD	1	
5	PROTECTIVE CASE	1	
6	HERMETICALLY SEALED INTEGRAL CABLE	1	
	LABELING, INTRINSICALLY SAFE, INTEGRAL CABLE	0	INS10025

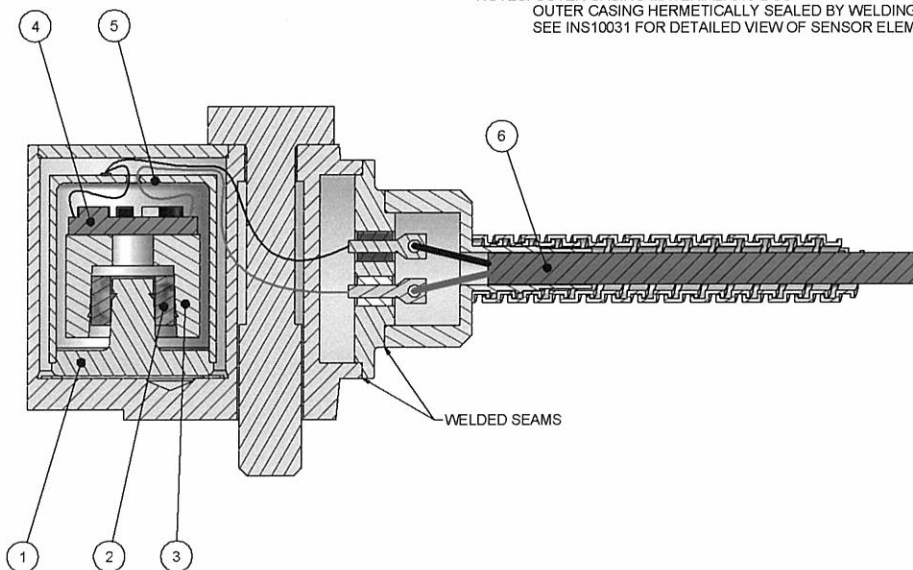
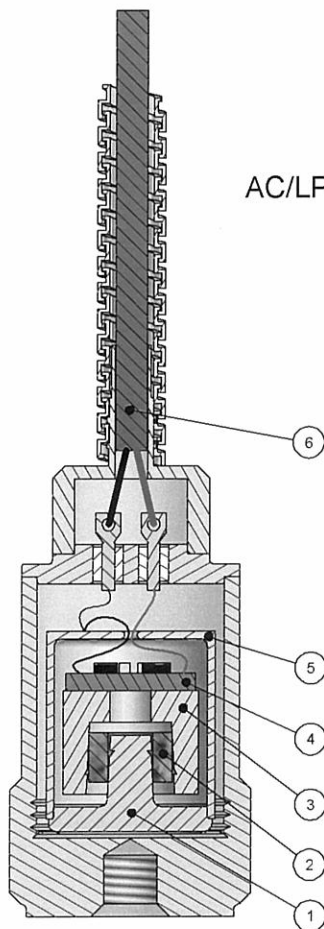
NOTES: OUTER CASING MATERIAL: 316-L SS
OUTER CASING HERMETICALLY SEALED BY WELDING
SEE INS10031 FOR DETAILED VIEW OF SENSOR ELEMENT

A	UPDATED TO HERMETIC FEED THRU VERSION, MODIFIED DESCRIPTION TO HAZARDOUS AREA	-	DMG	SS	11/25/2009
REV	DESCRIPTION	ECO#	DESIGNER	APPROVED	APPROVAL DATE

CTC CONFIDENTIAL

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED					
 VIBRATION ANALYSIS HARDWARE			PART #:		REV
			INS10014		A
			DESCRIPTION: SENSORS, ACCELEROMETERS, WITH INTEGRAL CABLE. HAZARDOUS AREA		
DRAWN BY	DATE	MATERIAL	TOLERANCES (UNLESS SPECIFIED) XXX ± .005 XX ± .01 ANGLE ± 2° BREAK ALL SHARP EDGES Ø 10 MAX	SHEET	
RP	9/16/2003	N/A		1 / 2	
APPROVED BY	DATE			NOT UNLESS FULL SCALE	
TL	12/30/2003				

AC/LP SERIES - ARMORED INTEGRAL CABLE



PARTS LIST			
ITEM	DESCRIPTION	QTY	REFERENCE/NOTES
1	PEDESTAL	1	
2	PIEZOELECTRIC MATERIAL	1	600 pF max (.6 nF)
3	SEISMIC MASS	1	
4	PC BOARD	1	
5	PROTECTIVE CASE	1	
6	HERMETICALLY SEALED INTEGRAL CABLE	1	
	LABELING, INTRINSICALLY SAFE, INTEGRAL CABLE	0	INS10025

NOTES: OUTER CASING MATERIAL: 316-L SS
OUTER CASING HERMETICALLY SEALED BY WELDING
SEE INS10031 FOR DETAILED VIEW OF SENSOR ELEMENT

CTC CONFIDENTIAL

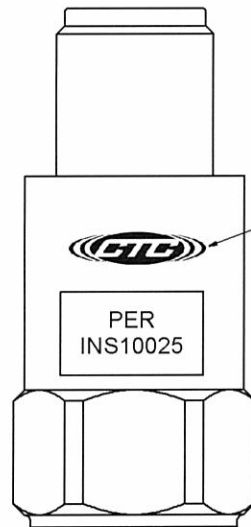
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

		PART #:	INS10014	REV	A
		DESCRIPTION: SENSORS, ACCELEROMETERS, WITH INTEGRAL CABLE. HAZARDOUS AREA			
DRAWN BY	RP	DATE	9/16/2003	MATERIAL	N/A
APPROVED BY	TL	DATE	12/30/2003	TOLERANCES (UNLESS SPECIFIED)	XXX ± .005 XX ± .01 ANGLE ± 2° BREAK ALL SHARP EDGES 0.10 MAX.
				SHEET	2 / 2
				NOT DRAWN TO SCALE	

REV	DESCRIPTION	ECO#	DESIGNER	APPROVED	APPROVAL DATE
A	UPDATED TO HERMETIC FEED THRU VERSION, MODIFIED DESCRIPTION TO HAZARDOUS AREA	-	DMG	SS	11/25/2009

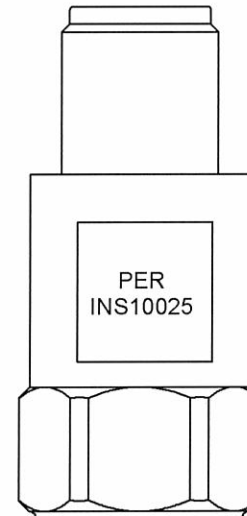
NOTES:

- CASE MATERIAL SS
- THIS IS A REPRESENTATION OF PLACEMENT OF MARKING ON TOP EXIT SENSORS.
- THIS SHOWS FRONT AND BACK ORIENTATION
- REFER TO INS10025 FOR SPECIFIC LABELING/MARKING INFORMATION



FRONT OF SENSOR

COMPANY LOGO, SUCH AS..



BACK OF SENSOR

REV	DESCRIPTION	ECO #	DRAWN BY/ DATE	APPROVED BY/DATE	REV	DESCRIPTION	ECO #	DRAWN BY/ DATE	APPROVED BY/DATE
A	CHANGED DESCRIPTION FROM INTRINSICALLY SAFE TO HAZARDOUS LOCATIONS		MJD 5/9/2007	SS 5/9/2007					

CTC CONFIDENTIAL

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

 VIBRATION ANALYSIS HARDWARE		PART #:		INS10015	REV	A
		DESCRIPTION:				LABELING, HAZARDOUS LOCATIONS
DRAWN BY	RP	DATE	7/16/03	MATERIAL	N/A	TOLERANCES (UNLESS SPECIFIED) XXX ± .005 XX ± .01 ANGLE ± 2' BREAK ALL SHARP EDGES 0.10 MAX. NOT DRAWN TO SCALE
APPROVED BY	TL	DATE	7/16/03	SHEET	1 / 1	

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AC Series Labeling Matrix for IECEx

CTC Part Number	Description	Remarks
AC951-1R	10 mV/g, IECEx, top exit, 2 pin connector	
AC951-2R/LLL-W	10 mV/g, IECEx, top exit, integral cable	max length 60 meters (200 ft)
AC951-3R/LLL/LLL-W	10 mV/g, IECEx, top exit, armor jacket integral cable	max length 60 meters (200 ft)
AC951-5*R	10 mV/g, IECEx, top exit, NPT	
AC952-1R	10 mV/g, IECEx, side exit, 2 pin connector	
AC952-2R/LLL-W	10 mV/g, IECEx, side exit, integral cable	max length 60 meters (200 ft)
AC952-3R/LLL/LLL-W	10 mV/g, IECEx, side exit, armor jacket integral cable	max length 60 meters (200 ft)
AC952-5*R	10 mV/g, IECEx, side exit, NPT	
AC953-1R	50 mV/g, IECEx, top exit, 2 pin connector	
AC953-2R/LLL-W	50 mV/g, IECEx, top exit, integral cable	max length 60 meters (200 ft)
AC953-3R/LLL/LLL-W	50 mV/g, IECEx, top exit, armor jacket integral cable	max length 60 meters (200 ft)
AC953-5*R	50 mV/g, IECEx, top exit, NPT	
AC954-1R	50 mV/g, IECEx, side exit, 2 pin connector	
AC954-2R/LLL-W	50 mV/g, IECEx, side exit, integral cable	max length 60 meters (200 ft)
AC954-3R/LLL/LLL-W	50 mV/g, IECEx, side exit, armor jacket integral cable	max length 60 meters (200 ft)
AC954-5*R	50 mV/g, IECEx, side exit, NPT	
AC955-1R	100 mV/g, IECEx, top exit, 2 pin connector	
AC955-2R/LLL-W	100 mV/g, IECEx, top exit, integral cable	max length 60 meters (200 ft)
AC955-3R/LLL/LLL-W	100 mV/g, IECEx, top exit, armor jacket integral cable	max length 60 meters (200 ft)
AC955-5*R	100 mV/g, IECEx, top exit, NPT	
AC956-1R	100 mV/g, IECEx, side exit, 2 pin connector	
AC956-2R/LLL-W	100 mV/g, IECEx, side exit, integral cable	max length 60 meters (200 ft)
AC956-3R/LLL/LLL-W	100 mV/g, IECEx, side exit, armor jacket integral cable	max length 60 meters (200 ft)
AC956-5*R	100 mV/g, IECEx, side exit, NPT	

AC Low Capacitance Series Labeling Matrix for IECEx

CTC Part Number	Description	Remarks
AC961-1R	10 mV/g, Low Capacitance IECEx, top exit, 2 pin connector	
AC961-2R/LLL-W	10 mV/g, Low Capacitance IECEx, top exit, integral cable	max length 500 meters (1640 ft)
AC961-3R/LLL/LLL-W	10 mV/g, Low Capacitance IECEx, top exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC961-5*R	10 mV/g, Low Capacitance IECEx, top exit, NPT	
AC962-1R	10 mV/g, Low Capacitance IECEx, side exit, 2 pin connector	
AC962-2R/LLL-W	10 mV/g, Low Capacitance IECEx, side exit, integral cable	max length 500 meters (1640 ft)
AC962-3R/LLL/LLL-W	10 mV/g, Low Capacitance IECEx, side exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC962-5*R	10 mV/g, Low Capacitance IECEx, side exit, NPT	
AC963-1R	50 mV/g, Low Capacitance IECEx, top exit, 2 pin connector	
AC963-2R/LLL-W	50 mV/g, Low Capacitance IECEx, top exit, integral cable	max length 500 meters (1640 ft)
AC963-3R/LLL/LLL-W	50 mV/g, Low Capacitance IECEx, top exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC963-5*R	50 mV/g, Low Capacitance IECEx, top exit, NPT	
AC964-1R	50 mV/g, Low Capacitance IECEx, side exit, 2 pin connector	
AC964-2R/LLL-W	50 mV/g, Low Capacitance IECEx, side exit, integral cable	max length 500 meters (1640 ft)
AC964-3R/LLL/LLL-W	50 mV/g, Low Capacitance IECEx, side exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC964-5*R	50 mV/g, Low Capacitance IECEx, side exit, NPT	
AC965-1R	100 mV/g, Low Capacitance IECEx, top exit, 2 pin connector	
AC965-2R/LLL-W	100 mV/g, Low Capacitance IECEx, top exit, integral cable	max length 500 meters (1640 ft)
AC965-3R/LLL/LLL-W	100 mV/g, Low Capacitance IECEx, top exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC965-5*R	100 mV/g, Low Capacitance IECEx, top exit, NPT	
AC966-1R	100 mV/g, Low Capacitance IECEx, side exit, 2 pin connector	
AC966-2R/LLL-W	100 mV/g, Low Capacitance IECEx, side exit, integral cable	max length 500 meters (1640 ft)
AC966-3R/LLL/LLL-W	100 mV/g, Low Capacitance IECEx, side exit, armor jacket integral cable	max length 500 meters (1640 ft)
AC966-5*R	100 mV/g, Low Capacitance IECEx, side exit, NPT	

Legend:

LLL	Denotes Length of integral cable and armor (if applicable)	Maximum length specified above
W	Indicates the different connectors that are available	
R	Indicates the current sensor revision level	
*	Indicates the connection to the sensor	Ex: Flying Leads
Prefix to Part Number	Indicates sensor mounting options	Ex: M/AC955 = M6 option

Document Revision:

B

Document Approved By:

Scott Stranford - Regulatory Affairs Coordinator

Document Approval Date:

12/11/2009

Control Number:
INS10054

LP Series Labeling Matrix for IECEx

CTC Part Number	Description	Remarks
LP852-XYZ-1R	Velocity Output, IECEx, top exit, 2 pin connector	
LP852-XYZ-2R/LLL-W	Velocity Output, IECEx, top exit, integral cable	max length 60 meters (200 ft)
LP852-XYZ-3R/LLL/LLL-W	Velocity Output, IECEx, top exit, armored jacket integral cable	max length 60 meters (200 ft)
LP852-XYZ-5*R	Velocity Output, IECEx, top exit, NPT	
LP854-XYZ-1R	Velocity Output, IECEx, side exit, 2 pin connector	
LP854-XYZ-2R/LLL-W	Velocity Output, IECEx, side exit, integral cable	max length 60 meters (200 ft)
LP854-XYZ-3R/LLL/LLL-W	Velocity Output, IECEx, side exit, armored jacket integral cable	max length 60 meters (200 ft)
LP854-XYZ-5*R	Velocity Output, IECEx, side exit, NPT	
LP952-XYZ-1R	Acceleration Output, IECEx, top exit, 2 pin connector	
LP952-XYZ-2R/LLL-W	Acceleration Output, IECEx, top exit, integral cable	max length 60 meters (200 ft)
LP952-XYZ-3R/LLL/LLL-W	Acceleration Output, IECEx, top exit, armored jacket integral cable	max length 60 meters (200 ft)
LP952-XYZ-5*R	Acceleration Output, IECEx, top exit, NPT	
LP954-XYZ-1R	Acceleration Output, IECEx, side exit, 2 pin connector	
LP954-XYZ-2R/LLL-W	Acceleration Output, IECEx, side exit, integral cable	max length 60 meters (200 ft)
LP954-XYZ-3R/LLL/LLL-W	Acceleration Output, IECEx, side exit, armored jacket integral cable	max length 60 meters (200 ft)
LP954-XYZ-5*R	Acceleration Output, IECEx, side exit, NPT	

LP Low Capacitance Series Matrix for IECEx

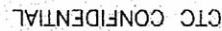
CTC Part Number	Description	Remarks
LP862-XYZ-1R	Velocity Output, Low Capacitance IECEx, top exit, 2 pin connector	
LP862-XYZ-2R/LLL-W	Velocity Output, Low Capacitance IECEx, top exit, integral cable	max length 500 meters (1640 ft)
LP862-XYZ-3R/LLL/LLL-W	Velocity Output, Low Capacitance IECEx, top exit, armored jacket integral cable	max length 500 meters (1640 ft)
LP862-XYZ-5*R	Velocity Output, Low Capacitance IECEx, top exit, NPT	
LP864-XYZ-1R	Velocity Output, Low Capacitance IECEx, side exit, 2 pin connector	
LP864-XYZ-2R/LLL-W	Velocity Output, Low Capacitance IECEx, side exit, integral cable	max length 500 meters (1640 ft)
LP864-XYZ-3R/LLL/LLL-W	Velocity Output, Low Capacitance IECEx, side exit, armored jacket integral cable	max length 500 meters (1640 ft)
LP864-XYZ-5*R	Velocity Output, Low Capacitance IECEx, side exit, NPT	
LP962-XYZ-1R	Acceleration Output, Low Capacitance IECEx, top exit, 2 pin connector	
LP962-XYZ-2R/LLL-W	Acceleration Output, Low Capacitance IECEx, top exit, integral cable	max length 500 meters (1640 ft)
LP962-XYZ-3R/LLL/LLL-W	Acceleration Output, Low Capacitance IECEx, top exit, armored jacket integral cable	max length 500 meters (1640 ft)
LP962-XYZ-5*R	Acceleration Output, Low Capacitance IECEx, top exit, NPT	
LP964-XYZ-1R	Acceleration Output, Low Capacitance IECEx, side exit, 2 pin connector	
LP964-XYZ-2R/LLL-W	Acceleration Output, Low Capacitance IECEx, side exit, integral cable	max length 500 meters (1640 ft)
LP964-XYZ-3R/LLL/LLL-W	Acceleration Output, Low Capacitance IECEx, side exit, armored jacket integral cable	max length 500 meters (1640 ft)
LP964-XYZ-5*R	Acceleration Output, Low Capacitance IECEx, side exit, NPT	

Legend:

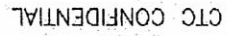
X - Measurement Range	0 - 9	User Defined: Example: Velocity - In/Sec; Acceleration - g's
Y - Range Type	R or P	RMS or Peak
Z - Frequency Range	0 - 99	User Defined: 0 - 50000 Hz
LLL	Denotes length of integral cable and armor (if applicable)	Maximum length specified above
W	Indicates the different connectors that are available with integral cable	
R	Indicates the current sensor revision level	
*	Indicates the connection to the sensor	Ex: Flying Leads
Prefix to Part Number	Indicates sensor mounting options	Ex: M/LP852 = M6 option

Document Revision:	B
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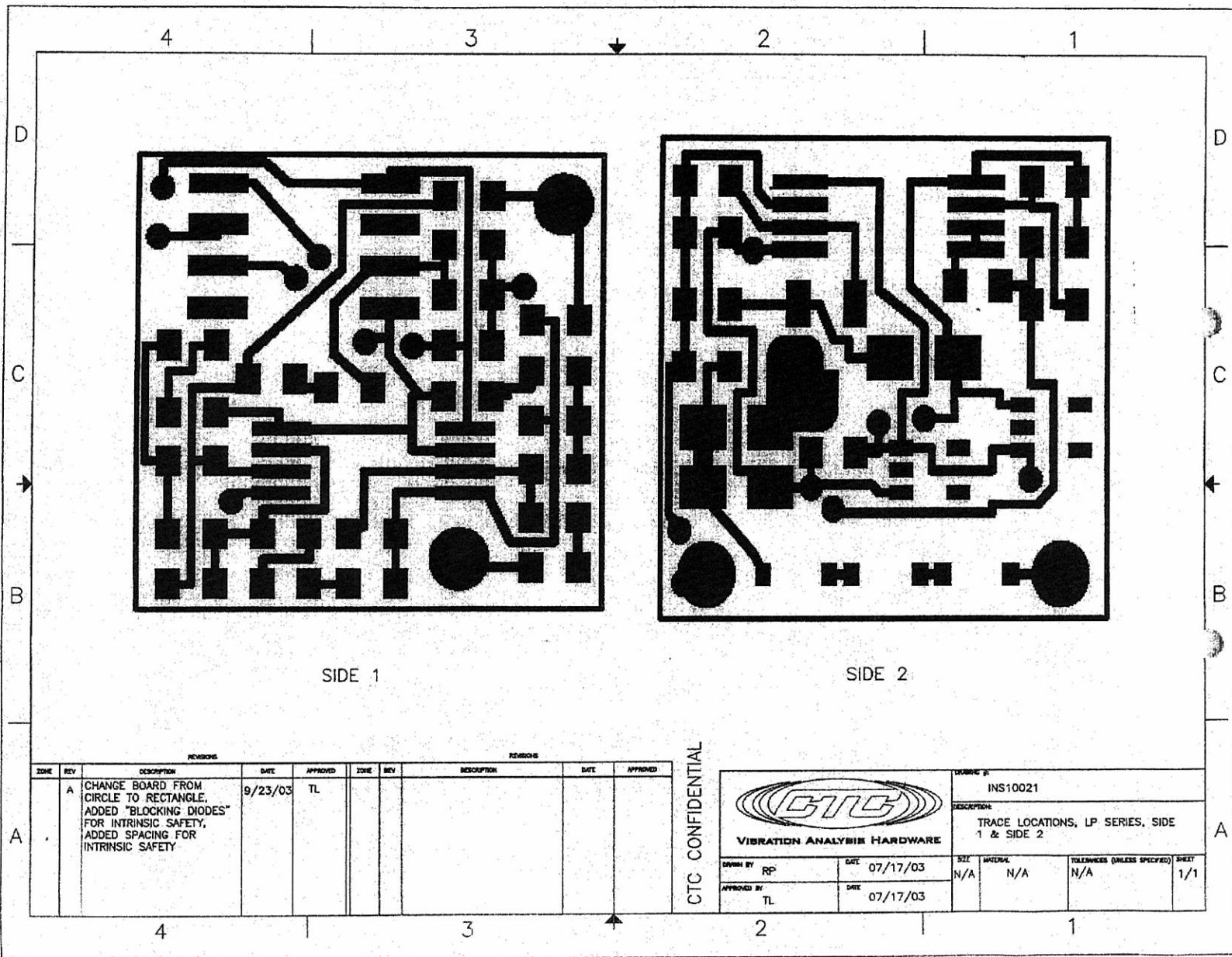
Document Approved By:	Scott Stranford - Regulatory Affairs Coordinator
Document Approval Date:	12/9/2009

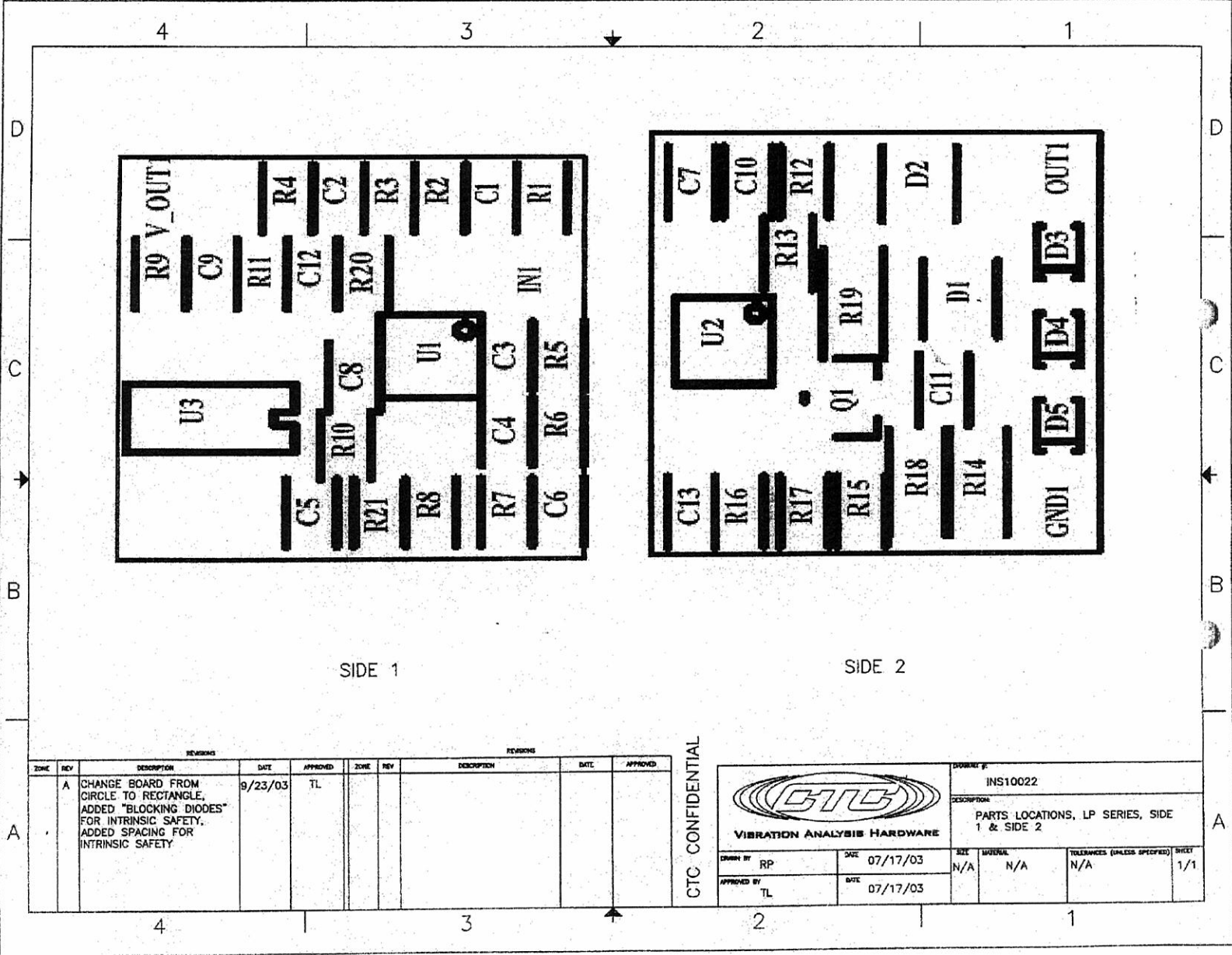


CSA INTERNATIONAL (CANADA)
CA/CSA/10/TR221421-2126074(1813811)

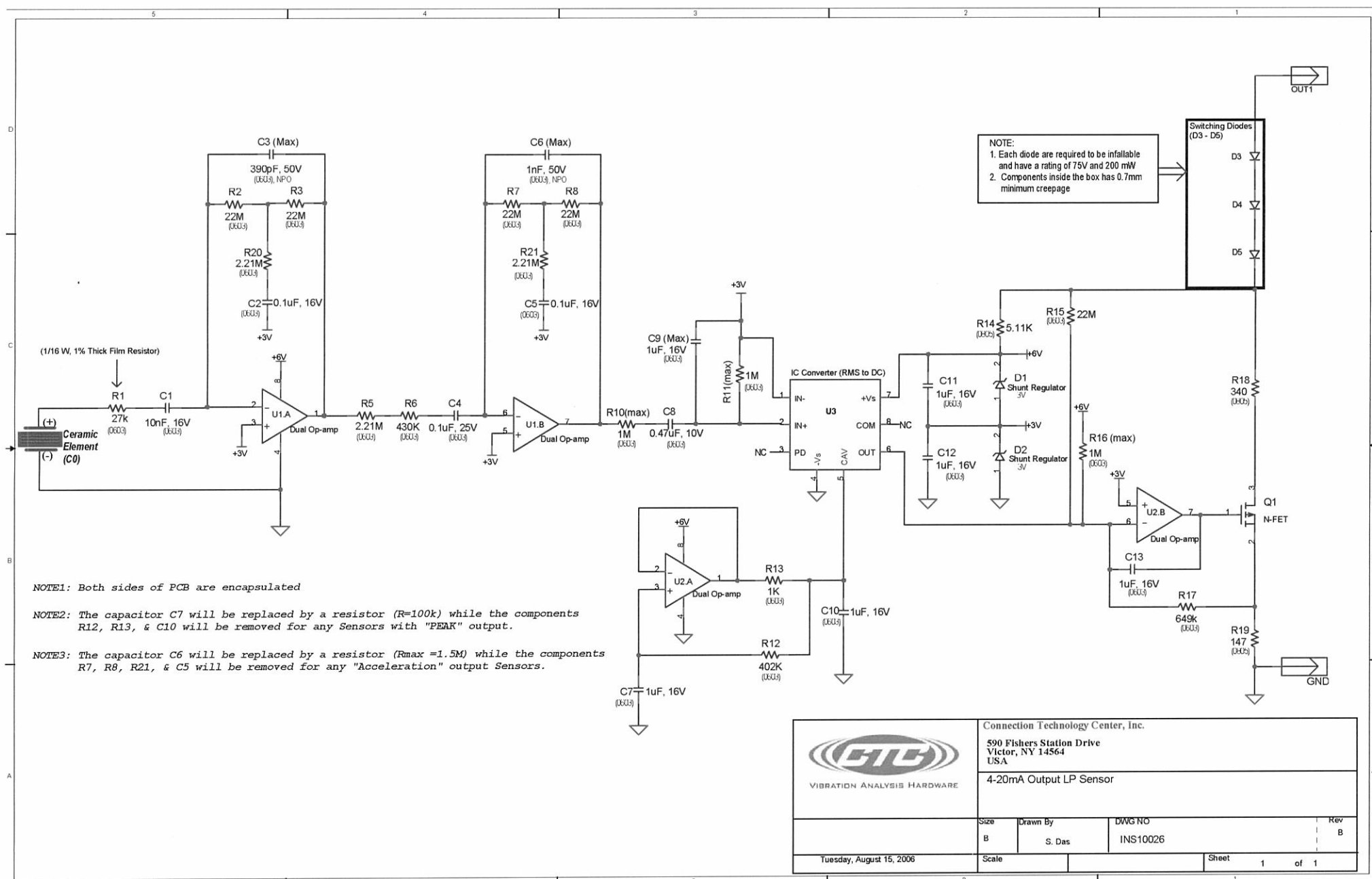


CSA INTERNATIONAL (CANADA)
CA/CSA/10/TR221421-2126074(1813811)





Master Contract: 221421
Certificate: 1458684
Report: 1809025
Edition: 2
Figure: 12



Component Table for INS10026	8/16/2006
4-20mA Output (loop powered) INTRINSICALLY SAFE PC BOARD	Rev B

QTY	Description	Ref Des Side 1	Ref Des Side 2
0	BLANK PCB - 0.031 thick, .590 inch x .550 inch FR4 material, RoHS Complaint (immersion silver plating)		
1	CAP 10000PF 16V CERM X7R 0603	C1	
2	CAP .1UF 16V CERAMIC X7R 0603	C2, C5	
1	CAP CERAMIC 390PF 50V 0603 SMD	C3 (max)	
1	CAP .1UF 25V CERAMIC X7R 0603	C4	
1	CAP CERM 1000PF 10% 50V X7R 0603	C6 (max)	
5	CAP CERM 1UF 10% 16V X5R 0603	C12	C7, C10, C11, C13
1	CAP CERAMIC .47UF 10V X5R 0603	C8	
1	CAP CER 1UF 16V X5R 0603	C9 (Max)	
1	RES 27.0K OHM 1/10W 1% 0603 SMD	R1	
5	RESISTOR 22M OHM 1/10W 10% 0603	R2, R3, R7, R8	R15
1	RES 1.00K OHM 1/10W 1% 0603 SMD		R13
3	RES 2.21M OHM 1/10W 1% 0603 SMD	R5, R20, R21	
1	RES 430K OHM 1/10W 1% 0603 SMD	R6	
3	RES 1.00M OHM 1/10W 1% 0603 SMD	R10(max), R11(max)	R16(max)
1	RES 402K OHM 1/10W 1% 0603 SMD		R12
1	RES 5.11K OHM 1/8W 1% 0805 SMD		R14
1	RES 649K OHM 1/10W 1% 0603 SMD		R17
1	RES 340 OHM 1/8W 1% 0805 SMD		R18
1	RES 147 OHM 1/8W 1% 0805 SMD		R19
2	IC DUAL FET INPUT	U1	U2
1	IC CONVERTER	U3	
2	IC 3V SHUNT REGULATOR		D1, D2
3	SWITCHING DIODES (75V, 200mW)		D3, D4, D5
1	FET N CHANNEL SOT 23		Q1
41			