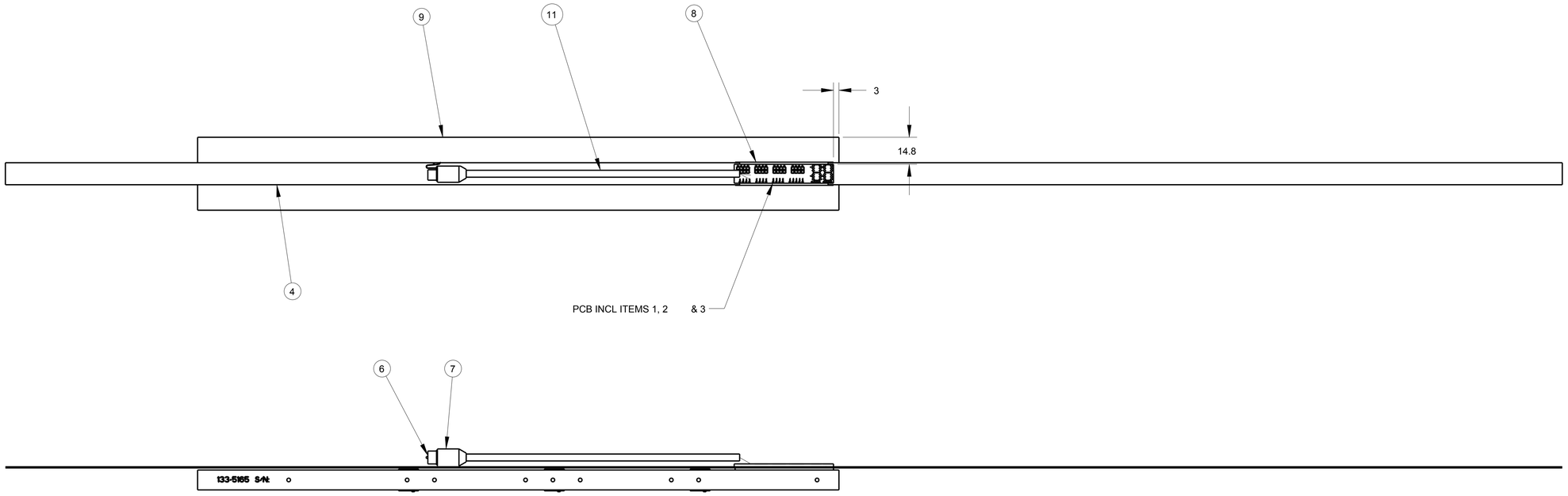
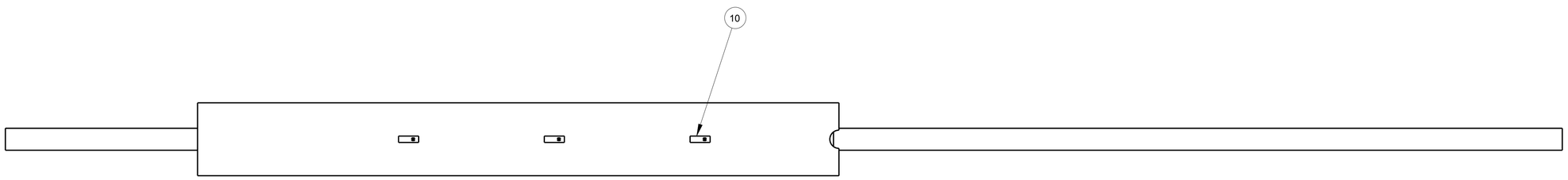
REVISIONS				
ECO/ECR#	REV.	DESCRIPTION	DATE	CHANGED BY
	A			
	B	SEE SHEET 2	21/10/14	MJB





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ITEM NO.	QTY	PART NO.	DESCRIPTION
11	1	6001987	CABLE, 16 CONDUCTOR SHIELDED
10	6	6002548	STRAIN GAGE
9	1	133-5101-G	FEMUR BONE GRIND
8	1	133-5109	TAPE, ACRYLIC FOAM, 54mm LONG
7	1	734-2008	BACKSHELL, 16 PIN CIRCULAR W/LATCH
6	1	6002637	CONNECTOR, 16 PIN CIRCULAR MALE W/LATCH
5	1	6002615	CABLE TIE, 2-7/8" (NOT SHOWN)
4	2	6002614	RIBBON CABLE, 20 CONDUCTOR
3	8	6002562	RESISTOR, 200 OHM, 1/16W, 0.1% 0603 SMD (NOT SHOWN)
2	8	6002561	RESISTOR, 150 OHM, 1/16W, 0.1% 0603 SMD (NOT SHOWN)
1	4	6002313	ID CHIP, 1K DS2431P (TSOC6 PACKAGE) (NOT SHOWN)

PART LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMALS: ANGLES: MACHINED:
X.x ± 0.5 ±0.5 ° 1.6
X.Xx ± 0.1
X.XX ± 0.05
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

STANDARD BUILD LEVEL:
THIRD ANGLE PROJECTION

DRAWING COURTESY OF:
HUMANETICS Innovative Solutions
FOR ADDITIONAL INFORMATION VISIT OUR WEBSITE: WWW.HUMANETICSATD.COM

APPROVALS	DATE
DRAWN J. MCINNIS	08-Feb-16
CHECKED	
PROD. ENG.	

MATERIAL
HEAT TREAT.
FINISH

PCB BONE ASSEMBLY, FEMUR

SIZE A1 | DWG NO. 133-5165 | REV. B
SCALE 0.750 | SHEET 1 OF 2

TQC TOTAL QUALITY CHECK

NEXT ASSY	QTY	USED ON
133-5100	1	133-5000

APPLICATION

FORMAT: SHEET A1 REV. A DOCUMENT 1 OF 2

PRO/ENGINEER

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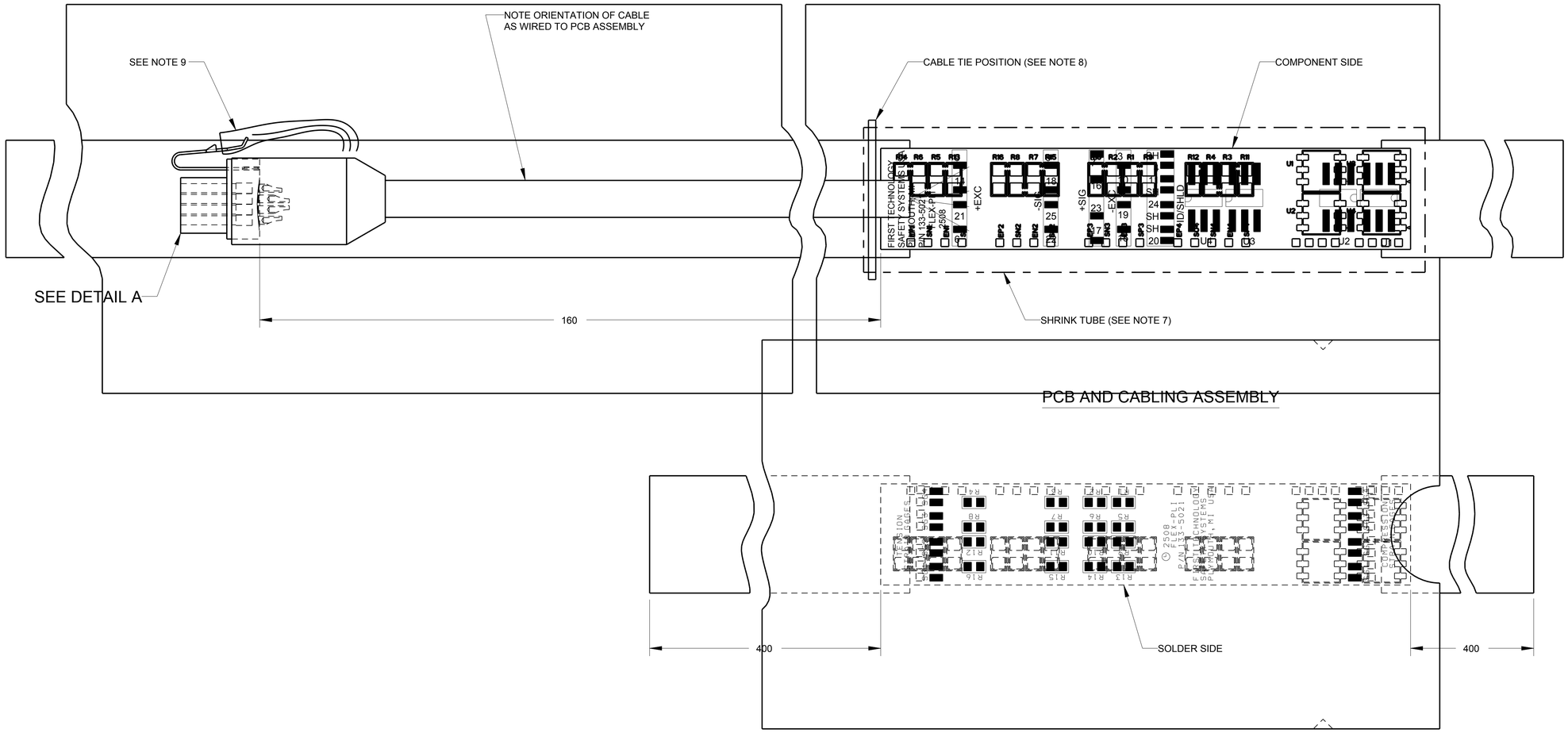

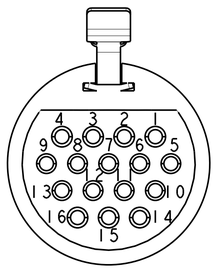

DETAIL A
SOLDER SIDE VIEW
SCALE 8.000

16 PIN CONNECTOR

COMPONENT SIDE PCB PAD NUMBERS

1	+SIGNAL (YELLOW)	PAD #7 (CHANNEL 1)
2	+ID (BROWN)	PAD #4 (CHANNEL 1)
3	-SIGNAL (BLUE/VIOLET)	PAD #18 (CHANNEL 2)
4	+SIGNAL (YELLOW/VIOLET)	PAD #16 (CHANNEL 2)
5	-SIGNAL (BLUE)	PAD #9 (CHANNEL 1)
6	+EXCITATION (RED)	PAD #5 (CHANNEL 1)
7	-EXCITATION (BLACK)	PAD #3 (CHANNEL 1)
8	+EXCITATION (RED/VIOLET)	PAD #14 (CHANNEL 2)
9	+ID (GREEN/VIOLET)	PAD #11 (CHANNEL 2)
10	+SIGNAL (YELLOW/WHITE)	PAD #23 (CHANNEL 3)
11	+EXCITATION (RED/WHITE)	PAD #21 (CHANNEL 3)
12	-EXCITATION (BLACK/WHITE)	PAD #19 (CHANNEL 3)
13	-EXCITATION (BLACK/VIOLET)	PAD #10 (CHANNEL 2)
14	-SIGNAL (BLUE/WHITE)	PAD #25 (CHANNEL 3)
15	+ID (GREEN/WHITE)	PAD #20 (CHANNEL 3)
16	-ID (SHIELD)	PAD SH

NOTES:

1. 6002313 IS INSTALLED IN LOCATIONS U1, U2, U3, U4.
2. 6002561 IS INSTALLED IN LOCATIONS R1, R4, R5, R8, R9, R12, R13, R16.
3. 6002562 IS INSTALLED IN LOCATIONS R2, R3, R6, R7, R10, R11, R14, R15.
4. INSTALL 734-2008 ONTO THE 16 CONDUCTOR CABLE FIRST. SOLDER THE WIRES OF THE 16 CONDUCTOR CABLE TO PCB COMPONENT SIDE. SEE THE SCHEMATIC. (THE SHIELD WIRE SOLDERS TO ANY PCB COMPONENT SIDE PAD MARKED "SH").
5. SEPARATE THE RIBBON CABLE (6002614) INTO TWO PIECES OF 6 CONDUCTORS. SOLDER ONE END OF EACH CONDUCTOR TO THE SOLDER SIDE PADS SG1, SG2, AND SG3. EACH RIBBON CABLE SHALL BE 400mm LONG. IDENTIFY THE CONDUCTORS SOLDERED TO SG1. THE OTHER END OF THE RIBBON CABLES WILL BE CUT TO LENGTH AND SOLDERED TO THE STRAIN GAGES OF THE FEMUR BONE ASSEMBLY (SEE SHEET 1).
6. COAT BOTH SIDES OF THE PCB WITH CONFORMAL COATING (E.G. TECHSPRAY 2108-P).
7. INSTALL 76mm (3 INCHES) OF THE SHRINK TUBE (8002579) OVER THE PCB ASSEMBLY.
8. INSTALL THE CABLE TIE (6002615) WHERE SHOWN, TO STRAIN RELIEF THE CABLE ASSEMBLY WITHIN THE SHRINK TUBE.
9. SECURE 734-2008 TO 6002637 WITH 3M EPOXY DP-110. INSTALL 30 AWG WIRE AND SHRINK TUBE TO SMALL HOLE ON 734-2008 AND SECURE WITH 3M EPOXY DP-110. COVER END OF LATCH AS SHOWN WITH SHRINK TUBE THEN HEAT TO SHRINK.

DRAWING COURTESY OF:
FIRST TECHNOLOGY SAFETY SYSTEMS

PCB BONE ASSEMBLY, 3 CHANNEL
FEMUR, TESTED & CERTIFIED

SIZE	DWG NO.	REV
A1	133-5165	D
SCALE 4.000	SHEET 2 OF 3	

FORMAT: SHEET A1 REV. A DOCUMENT 2 OF 2

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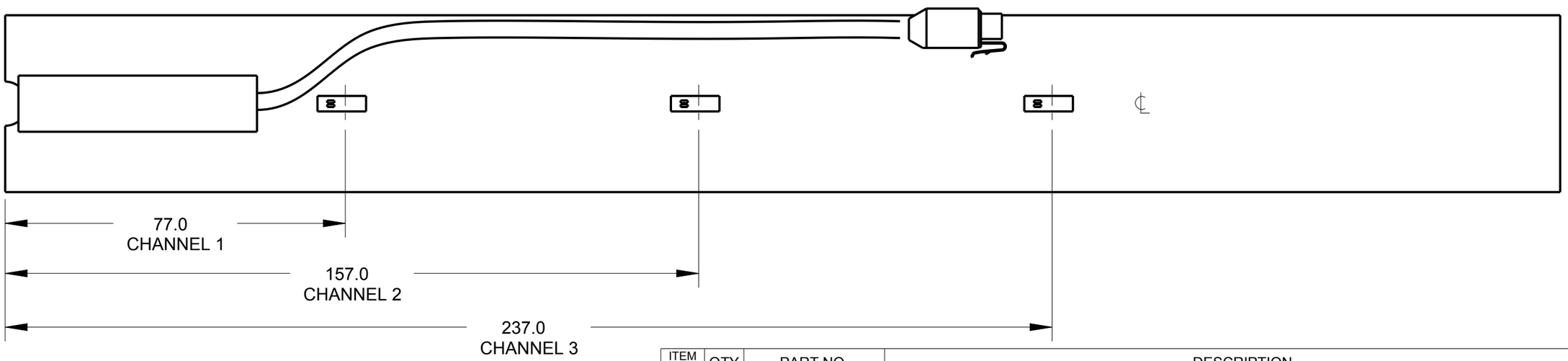
CONNECTOR PINOUTS		
PIN	CHANNEL	FUNCTION
1	1	+SIG
2	1	+ID
3	2	-SIG
4	2	+SIG
5	1	-SIG
6	1	+EXC
7	1	-EXC
8	2	+EXC
9	2	+ID
10	3	+SIG
11	3	+EXC
12	3	-EXC
13	2	-EXC
14	3	-SIG
15	3	+ID
16		-ID

PERFORMANCE SPECIFICATIONS			
	GAUGE 1	GAUGE 2	GAUGE 3
CAPACITY (Nm)	380	380	380
NOMINAL F.S. OUTPUT (mV/N)	11.8	11.8	11.8
NOMINAL BRIDGE RESISTANCE (Ω)	350	350	350
NONLINEARITY (%F.S.)	≤ 1.0	≤ 1.0	≤ 1.0
HYSTERESIS (%F.S.)	≤ 2.0	≤ 2.0	≤ 2.0
EXCITATION VOLTAGE (V DC MAX.)	10	10	10

REVISIONS				
ECO/ECR#	REV.	DESCRIPTION	DATE	CHANGED BY
	A			
	B	EXPECTED OUTPUT (m/V/V) WAS (mV/N), 11.8 WAS 9.5	21/10/14	MB



ITEM NO.	QTY	PART NO.	DESCRIPTION

PART LIST

NEXT ASSEMBLY	QTY	USED ON
133-5100	1	133-5000

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMALS: ANGLES: MACHINED:
X ± 0.5 ±0.5 °
X.X ± 0.1
X.XX ± 0.05
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

1.6

STANDARD BUILD LEVEL: A

THIRD ANGLE PROJECTION

	APPROVALS	DATE
MATERIAL		
DRAWN	J. MCINNIS	08-Feb-16
HEAT TREAT	CHECKED	
FINISH	PROD. ENG.	

DRAWING COURTESY OF:
HUMANETICS Innovative Solutions
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PCB BONE ASSEMBLY, FEMUR

SIZE A3 | DWG NO. 133-5165 | REV B

SCALE 1.000 | SHEET 2 OF 2

FORMAT: SHEET-A3 REV.- A DOCUMENT 1 OF 2

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