REVISIONS			
REV	DESCRIPTION	DATE	APP
A	ORIGINAL RELEASE PER DDR	11/02/05	ADG
B	CORRECT POWER INPUT PINOUT	07/15/14	NM

GENERAL NOTES:

1. THE PCA121 DIGITAL TO ANALOG CONVERTOR SHOULD BE PLACED IN A CONVENIENT LOCATION THAT MAINTAINS ACCESS TO THE UNIT SHOULD REPAIRS OR READJUSTMENT BE REQUIRED.
2. CONNECTIONS TO THE TERMINAL BLOCK SHOULD BE CAREFULLY DRESSED TO AVOID HAVING BARE WIRES EXTEND PASS THE SCREW CLAMP ON THE TERMINAL BLOCK. THIS IS PARTICULARLY IMPORTANT WHEN THE PC CARD IS MOUNTED WITHIN AN EXPLOSION PROOF ENCLOSURE. WIRES SHOULD BE NEATLY DRESSED NEAR BOTTOM OF ENCLOSURE TO PREVENT PROBLEMS WHEN COVER IS INSTALLED.
3. FOR COMPLIANCE WITH EMI/RFI REQUIREMENTS THE PRE-AMPLIFIER MUST BE INSTALLED IN A METAL ENCLOSURE SUCH AS A SUITABLE NEMA 4 (E.G. GUAC) JUNCTION BOX. THE ENCLOSURE MUST BE PROPERLY GROUNDED. ALSO A GROUNDING STRAP REQUIRED FROM THE ENCLOSURE TO THE POWER SUPPLY COMMON.
4. THE CABLE ENTRY REQUIRES 360° GROUNDING COVERAGE TO THE ENCLOSURE CASE. THIS IS OBTAINED BY USING TWISTED PAIR WITH FULL BRAID CABLE AND A CABLE FITTING THAT PROVIDES A METAL TO METAL CABLE CLAMPING CONNECTION. THE INSULATION OF THE CABLES SHOULD BE STRIPPED BACK TO ALLOW FOR CONNECTION TO THE TERMINAL BLOCK AND ALLOW FOR THE CABLE FITTING TO CLAMP ONTO THE BRAIDED SHIELD. ANY OPEN AREAS SHOULD THEN BE COVERED USING FOIL TAPE.
5. IN HAZARDOUS LOCATIONS WHERE METAL CONDUIT IS USED, 360° GROUNDING IS ACHIEVED. ALL CABLE SHIELDS SHOULD BE TERMINATED TO THE ENCLOSURE-GROUNDING STUD.
6. INSTALLATION WIRING:

A) CURRENT OUTPUT - WIRE TWO CONDUCTOR SHIELDED CABLE TO TB1 TERMINAL 2 (COMMON) AND TERMINAL 3 (CURRENT OUTPUT)

B) VOLTAGE OUTPUT - WIRE TWO CONDUCTOR SHIELDED CABLE TO TB1 TERMINAL 2 (COMMON) AND TERMINAL 1 (VOLTAGE OUTPUT)

C) DC POWER INPUT - CONNECT (8-30VDC) TO TB2 TERMINAL 3 (+) AND TERMINAL 2 (-)

D) SQUARE WAVE INPUT - CONNECT TO TB2 TERMINAL 1 (+) AND TERMINAL 2 (-)

MATERIAL	APPROVALS		
NONE	DRAWN D.GUYDAN	DATE 10/28/05	
FINISH	CHECK J.DEFEO	11/02/05	
NONE	ISSUED M.BERGMAN	11/02/05	
	DIMENSION UNITS UOS: INCH / MM / INCH [MM]		

DEFAULT TOLERANCES SHALL BE AS INDICATED BELOW UNLESS OTHERWISE SPECIFIED (UOS):

1 PLACE DECIMAL	±.015
2 PLACE DECIMAL	±.01
3 PLACE DECIMAL	±.005
FRACTIONAL	±1/64
ANGULAR	±1/2°

MOTION SENSORS INC.
ELIZABETH CITY, NC 27909

TITLE

INSTALLATION DRAWING PCA121S D TO A CONVERTER

SIZE	CAGE CODE	DWG NO	REV
A	0Y2U4	ST-A-1557	B

SCALE NONE

REVISIONS			
REV	DESCRIPTION	DATE	APP
	SEE SHT 1 FOR REV STATUS		

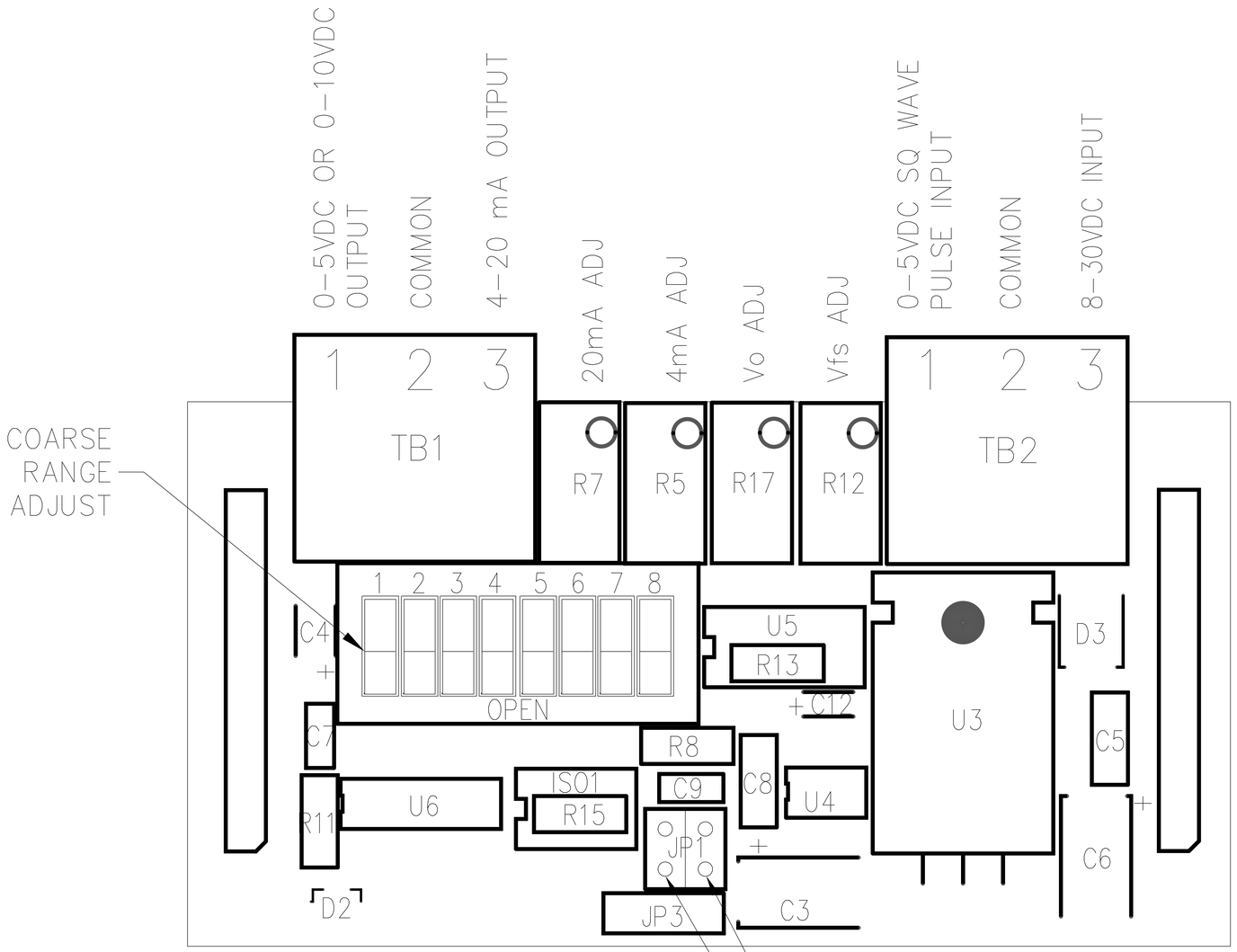

FIGURE 1

CONTROL AND ADJUSTMENT DETAILS

MATERIAL	APPROVALS		
NONE	DRAWN D.GUYDAN	DATE 10/28/05	
FINISH	CHECK J.DEFEO	11/02/05	
NONE	ISSUED M.BERGMAN	11/02/05	
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A	0Y2U4	ST-A-1557	B
SCALE NONE		SHEET 2 OF 4	

REVISIONS			
REV	DESCRIPTION	DATE	APP
	SEE SHT 1 FOR REV STATUS		

ANALOG OUTPUT ADJUSTMENTS:

1. 20MA ADJ – A TWENTY TURN ADJUSTMENT WHICH IS USED TO SET CURRENT OUTPUT TO THE DESIRED SPAN CORRESPONDING TO THE EQUIVALENT FULL SCALE RANGE, I.E., 20 MA AT 100 RPM
2. 4MA ADJ – A TWENTY TURN ADJUSTMENT THAT IS USED TO SET THE CURRENT OUTPUT SIGNAL TO THE DESIRED ZERO VALUE, I.E., 4MA AT ZERO RPM.
3. VFS ADJ – A TWENTY TURN ADJUSTMENT THAT IS USED TO SET THE VOLTAGE OUTPUT TO THE DESIRED SPAN CORRESPONDING TO THE EQUIVALENT FULL SCALE RANGE, I.E., 5VDC OR 10VDC AT 100 RPM.
4. VO ADJ – A TWENTY TURN ADJUSTMENT THAT IS USED TO SET THE VOLTAGE OUTPUT SIGNAL TO THE DESIRED ZERO VALUE, I.E., 0VDC AT ZERO RPM.
5. COARSE RANGE ADJ – A DUAL IN LINE (DIP) SWITCH WHICH IS LOCATED ON THE PCA–121S BOARD, WHICH IS USED TO PERFORM A COARSE RANGE ADJUSTMENT FOR THE INPUT FREQUENCY RANGE.
6. VFS SELECTION – A TWO (2) POSITION JUMPER THAT IS USED TO SELECT THE DESIRED VOLTAGE OUTPUT RANGE OF EITHER 0–5VDC OR 0–10VDC.

TABLE 2

FREQ (kHZ)	SW POS
.05–.1	1
.1–.2	2
.2–.4	3
.4–.8	4
.8–1.6	5
1.6–3.2	6
3.2–6.4	7
6.4–12.8	8

TABLE 1

MAN	MODEL	DESCRIPTION
FLUKE	8060A	TRUE RMS MULTIMETER
TOPWARD	8112	DIGITAL FUNCTION GENERATOR
VIZ	WD–755	MULTI–FUNCTION GENERATOR
SPECTROL	8–TOOO	ADJUSTMENT TOOL

CONTROL AND ADJUSTMENT DETAILS

MATERIAL: NONE

FINISH: NONE

APPROVALS		DATE
DRAWN	D.GUYDAN	10/28/05
CHECK	J.DEFEO	11/02/05
ISSUED	M.BERGMAN	11/02/05

DIMENSION UNITS UOS: INCH | MM | INCH [MM]

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SCALE: NONE

REVISIONS			
REV	DESCRIPTION	DATE	APP
	SEE SHT 1 FOR REV STATUS		

CALIBRATION PROCEDURE:

1. FOR FIELD CALIBRATION/TROUBLESHOOTING THE PC121S REFER TO TABLE 1 FOR SUGGESTED EQUIPMENT.
2. CURRENT OUPUT:
   A) CONNECT A DIGITAL MILLIAMPMETER OR EQUIVALENT, ACROSS THE CURRENT OUTPUT TERMINALS.
   B) ON THE PCA-121S SELECT THE "COARSE RANGE ADJ" THAT CORRESPONDS TO THE MAXIMUM INPUT FREQUENCY. REFER TO TABLE 2 FOR SELECTION OPTIONS.
   C) ADJUST "4MA ADJ" CONTROL FOR DESIRED "ZERO" CURRENT, I.E. 4MA.
   D) INJECT THE FULL-SCALE TEST FREQUENCY (DC SQUARE WAVE-5V) WHILE ADJUSTING "20MA ADJ" FOR CURRENT EQUAL TO SET (SPAN).
   E) ITERATE ABOVE STEPS UNTIL NO CHANGE IS OBSERVED.
3. VOLTAGE OUTPUT:
   A) NOTE: FOR PROPER ADJUSTMENT OF THE VOLTAGE OUTPUT, FIRST PERFORM CALIBRATION OF THE CURRENT OUTPUT.
   B) CONNECT A DIGITAL VOLTMETER ACROSS THE VOLTAGE OUTPUT TERMINALS.
   C) ON THE PCA-121S SELECT THE "COARSE RANGE ADJ" THAT CORRESPONDS TO THE MAXIMUM INPUT FREQUENCY. REFER TO TABLE 2 FOR SELECTION OPTIONS.
   D) ADJUST "VO ADJ" FOR 0.00 VOLTS.
   E) INJECT THE TEST FREQUENCY (DC SQUARE WAVE) WHILE ADJUSTING "VFS ADJ" FOR VOLTAGE EQUAL TO SET (SPAN).
   F) ITERATE ABOVE STEPS UNTIL NO CHANGE IS OBSERVED.

CONTROL AND ADJUSTMENT DETAILS

MATERIAL	APPROVALS		
NONE	DRAWN D.GUYDAN	DATE 10/28/05	MOTION SENSORS INC. ELIZABETH CITY, NC 27909
FINISH	CHECK J.DEFEO	11/02/05	
NONE	ISSUED M.BERGMAN	11/02/05	TITLE: INSTALLATION DRAWING PCA121S D TO A CONVERTER
	DIMENSION UNITS UOS: INCH / ~~MM~~ / ~~INCH [MM]~~		SIZE A · CAGE CODE 0Y2U4 · DWG NO ST-A-1557 · REV B
CONFIDENTIAL PROPERTY OF MOTION SENSORS, INC. (MSI) NOT TO BE DISCLOSED TO OTHERS, REPRODUCED, OR USED FOR ANY OTHER PURPOSE, EXCEPT AS AUTHORIZED IN WRITING BY MSI. MUST BE RETURNED ON DEMAND.	DEFAULT TOLERANCES SHALL BE AS INDICATED BELOW UNLESS OTHERWISE SPECIFIED (UOS): 1 PLACE DECIMAL ±.015; 2 PLACE DECIMAL ±.01; 3 PLACE DECIMAL ±.005; FRACTIONAL ±1/64; ANGULAR ±1/2°		SCALE NONE · SHEET 4 OF 4