ENCLOSURE SPECIFIC DATA
for
ComTech TFLA

Revision: 15 May 2013

1.0 INTRODUCTION

1.1 Appendix Organization

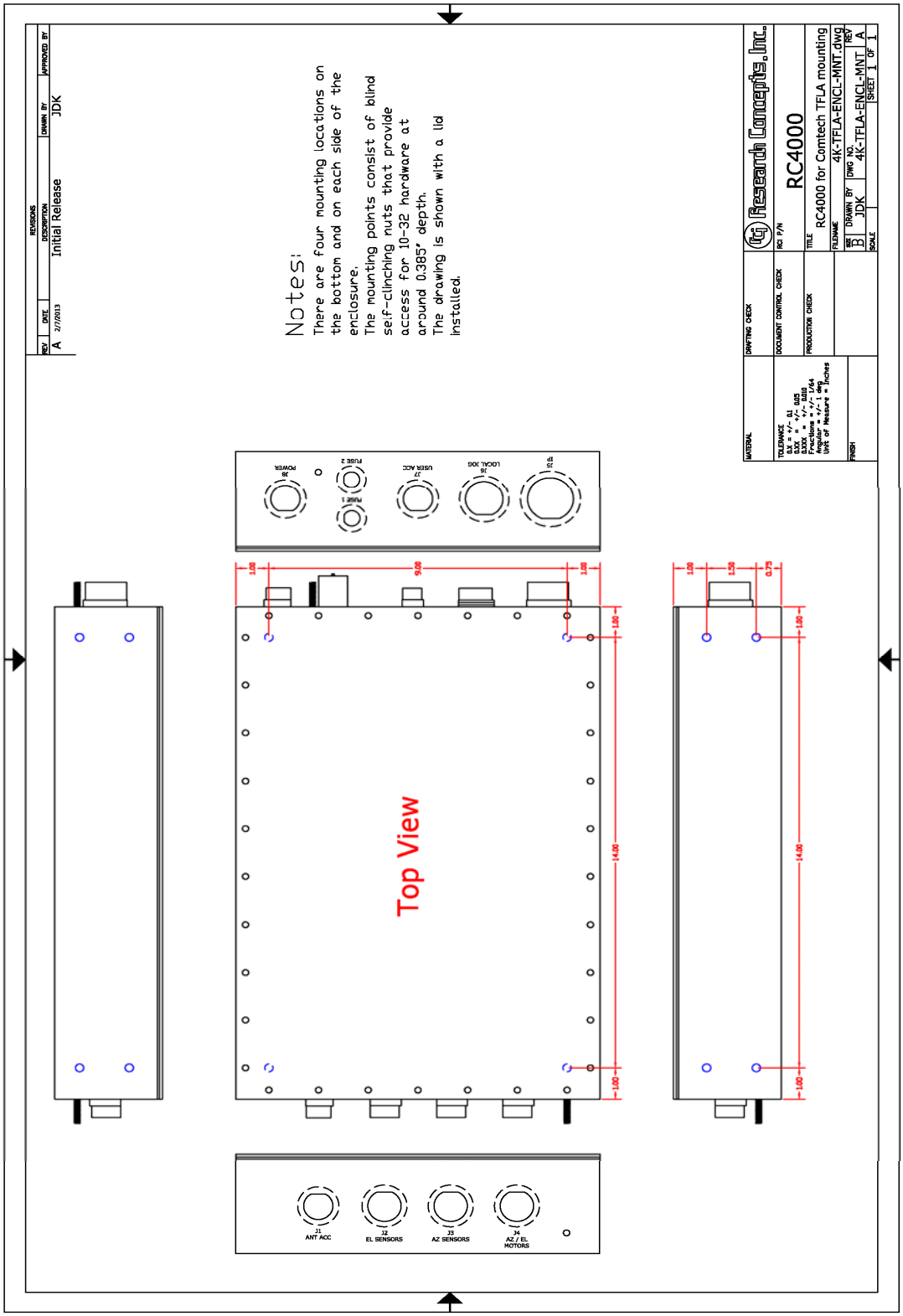
This appendix is provided as a supplement to the baseline RC4000 User's Manual which describes the PCB board stack that is common to all systems. Section 2 describes the mechanical aspects of the controller, while section 3 describes the electrical connections.

2.0 MECHANICAL

2.1 RC4000 Antenna Controller Chassis and Lid

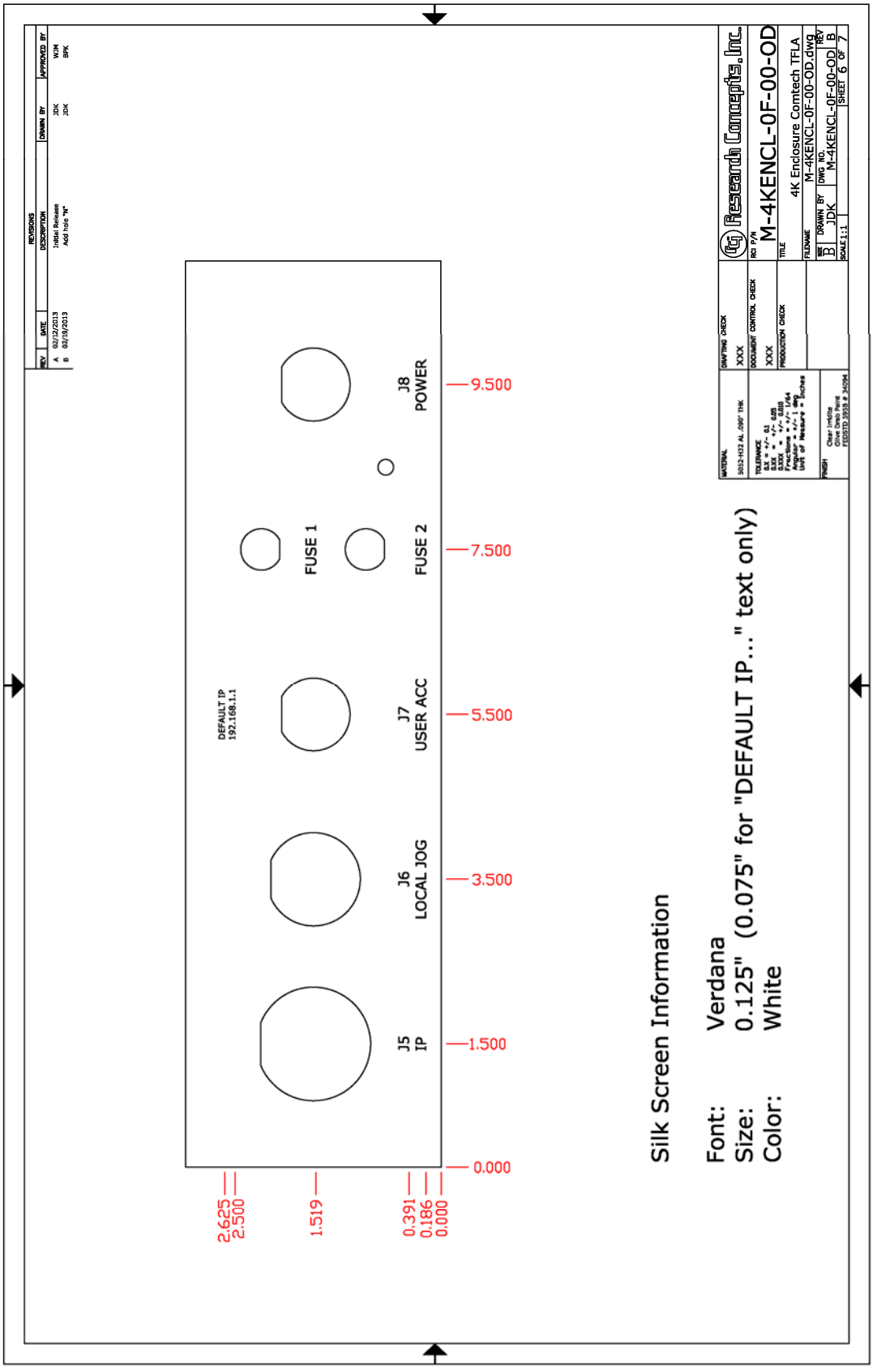
For the Comtech TFLA (Q3 mount type), the ACU is mechanized as an embedded controller. The PCB board stack is located inside a weatherproof enclosure shown below.

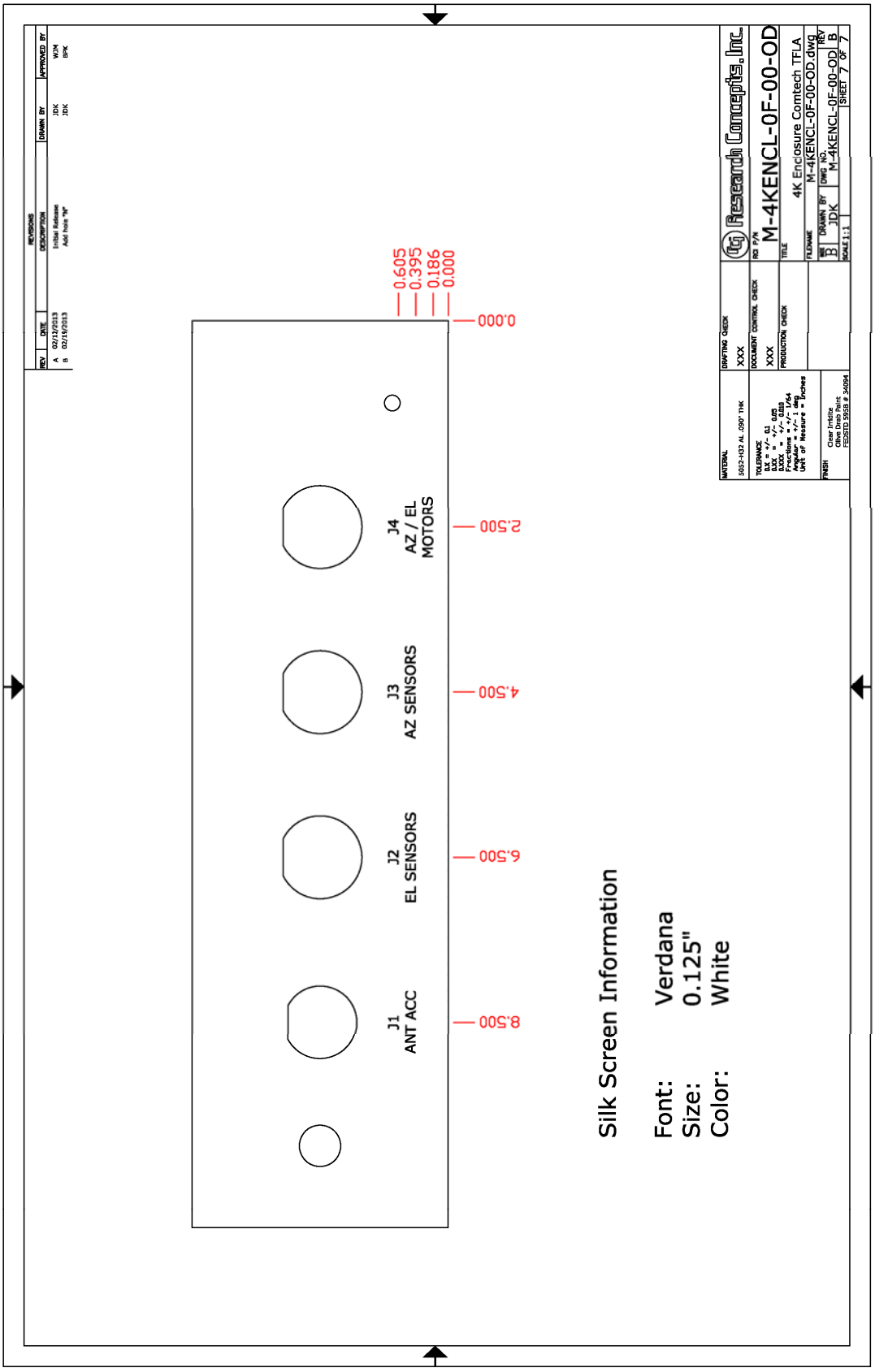
The chassis of the RC4000 consists of a frame with a floor, and separate end panels and lid.



2.2 RC4000 End Panels

The RC4000 end panels are where the connectors are located. The User Interface end panel contains connectors that that the user may need to frequently have access to, such as the AC power and Ethernet. The other end is the Antenna Interface end panel, which includes connectors that primarily go to the antenna itself, such as the motor and sensors connections.
The following diagrams show both end panels.


REVISIONS
REV DATE DESCRIPTION DRAWN BY APPROVED BY
A 02/12/2013 Initial Release JDK WJM
B 02/19/2013 Add hole "M" JDK BPK
DEFAULT IP
192.168.1.1
J5
IP
J6
LOCAL JOG
J7
USER ACC
FUSE 1
FUSE 2
J8
POWER
9.500
7.500
5.500
3.500
1.500
0.000
2.625
2.500
1.519
0.391
0.186
0.000
Silk Screen Information
Font: Verdana
Size: 0.125" (0.075" for "DEFAULT IP..." text only)
Color: White
Research Concepts, Inc.
M-4KENCL-0F-00-OD
4K Enclosure Comtech TFLA
M-4KENCL-0F-00-OD.dwg
M-4KENCL-0F-00-OD
JDK
SHEET 6 OF 7


0.605
0.395
0.186
0.000
0.000
2.500
4.500
6.500
8.500
J1
ANT ACC
J2
EL SENSORS
J3
AZ SENSORS
J4
AZ / EL
MOTORS
Silk Screen Information
Font: Verdana
Size: 0.125"
Color: White
Research Concepts, Inc.
M-4KENCL-0F-00-OD
4K Enclosure Comtech TFLA
M-4KENCL-0F-00-OD.dwg
M-4KENCL-0F-00-OD
B
SHEET 7 OF 7

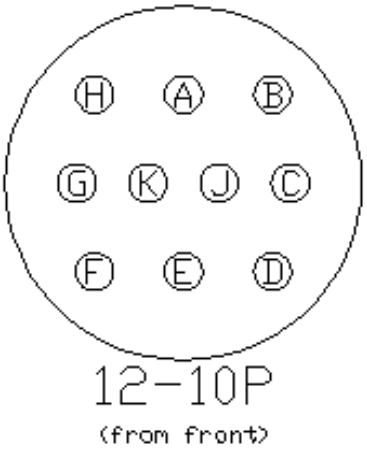
2.3 CONNECTORS

The following table provides a list of the external connectors on the enclosure end panels.

Ref Des	Description
J1	Compass
J2	Elevation Axis Sensors
J3	Azimuth Axis Sensors
J4	Motors
J5	Ethernet
J6	Handheld Controller
J7	GPS
J8	AC Power In

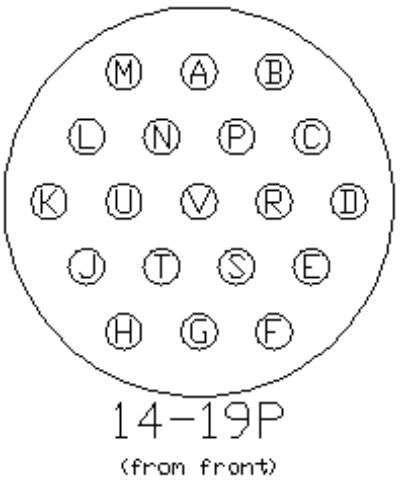
Detailed description of each connector and its pinouts follow.

J1 - COMPASS

Reference	J1 ANT ACC	
Description	Ant Acc	
RCI P/N	CN-MS3124E1210P	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E12-10P	
Mating Connector	MS3116F12-10S RCI p/n CN-MS31161210S	
Mating Conn. Cap	MS3180-12-CA RCI p/n CN-MS3180-12CA	
Notes	Existing TFLA flux gate compass will need to be rewired accommodate 24 VDC input voltage.	

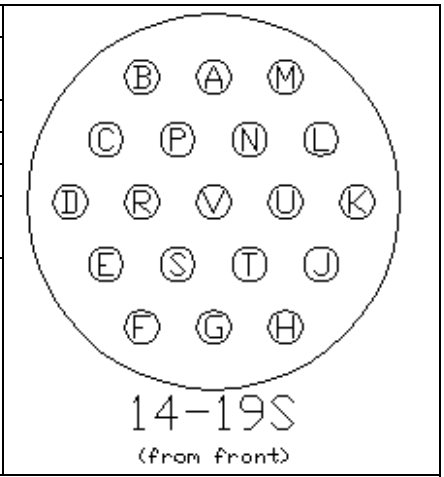
Pin	**Description**	**Notes**
A	+24V	
B	RS232 In from Compass	
C	RS232 Out to Compass	
D		
E	Compass Ground	
F	Compass Shield	
G		
H		
J		
K		

J2 - Elevation Axis Position Sense and Limits

Reference Designator	J2 EL SENSORS	
Description	Elev Axis Position Sense/Limits, 19 size 20 pins	
RCI P/N	CN-MS3124E1419P	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E14-19P	
Mating Connector	MS3116F14-19S RCI p/n CN-MS31161419S	
Mating Conn. Cap	MS3180-14-CA RCI p/n CN-MS3180-14CA	
Notes	Inclinometer must be Accustar ratiometric output model. P/N 0211 0002-000 with Vertical Flange OR P/N 0211 0102-000 with Horizontal Flange	

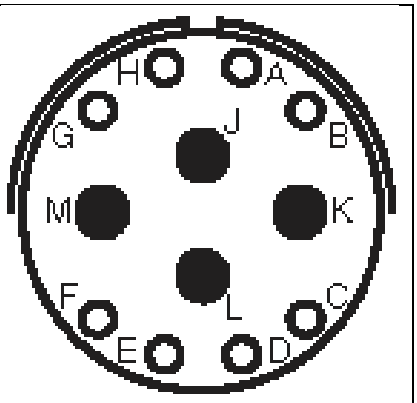
Pin	**Description**	**Notes**
A	El Limit +5V	
B	El Limit +5V	
C	Extra Shield/Gnd	
D	El Limits Shield	
E	Inclinometer Shield	
F		
G		
H	Extra Shield	
J	Inclinometer Power +5V	Connect to inclinometer Red wire.
K		
L	El Up Limit In	Switch opens at limit.
M	El Limit +5V	
N	El Down Limit In	Switch opens at limit.
P	El Stow In	Switch opens at limit.
R		
S	Inclinometer Gnd	Connect to inclinometer Black wire.
T	Inclinometer Signal	Connect to inclinometer Yellow wire.
U		
V		

J3 - Azimuth Position Sense and Limits

Reference	J3 AZ SENSORS	
Description	Az Axis Position Sense/Limits, 19 size 20 sockets	
RCI P/N	CN-MS3124E1419S	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E14-19S	
Mating Connector	MS3116F14-19P RCI p/n CN-MS31161419P	
Mating Conn. Cap	MS3180-14-CA RCI p/n CN-MS3180-14CA	
Notes		

Pin	Description	Notes
A		
B	Az Limit +5V	
C	Az Stow Shield	
D		
E	Az Pot Shield	
F		
G		
H		
J	Az Pot +5V	
K		
L		
M	Az Limit +5V	
N		
P	Az Stow In	Switch closes at stow position.
R		
S	Az Pot Gnd	
T	Az Pot Wiper	Voltage should increase antenna move azim CW.
U		
V		

J4 - Az/El Motors

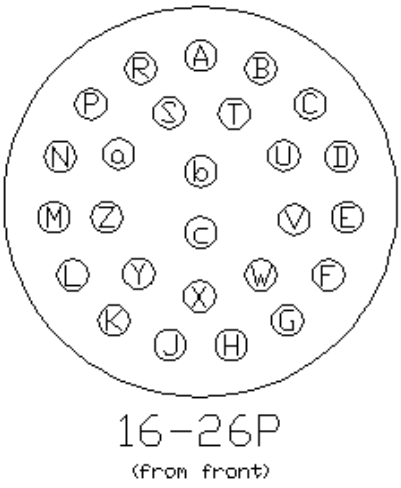
Reference	J4 AZ/EL MOTORS	
Description	Az and El Motors,	
RCI P/N	CN-MS3124E1412S	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E14-12S	
Mating Connector	MS3116F14-12P RCI p/n CN-MS31161412P	
Mating Conn. Cap	MS3180-14-CA RCI p/n CN-MS3180-14CA	
Notes	Connector has 4 size 16 contacts and 8 size 20 contacts.	

Pin	Description	Notes
A		
B		
C	Az Motor Shield	
D		
E		
F		
G	El Motor Shield	
H		
J	El Motor (+)	EL UP when Pin J has higher potential than Pin M
K	Az Motor (+)	AZ CW when Pin K has higher potential than Pin L
L	Az Motor (-)	
M	El Motor (-)	

J5 – Ethernet

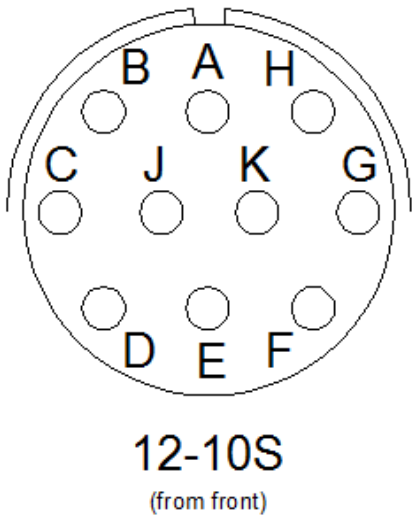
Reference Designator	J5 IP
Description	RJ45 Ethernet Receptacle
RCI P/N	CN-RJFTV71G
Manufacturer	Amphenol
Manufacturer P/N	RJFTV71G
Mating Connector Shroud	AMPHENOL P/N RJFTV6MG RCI p/n CN-RJFTV6MG
Mating Conn. Cap	AMPHENOL P/N RJFTVC6G RCI p/n CN-RJFTVC6G
Notes	This connector will accept a standard RJ45 plug. When the Ethernet cable is fitted with the mating connector shroud listed above, the connection is weather tight.

J6 - Handheld Interface

Reference Designator	J6 LOCAL JOG	
Description	Handheld Interface Connector, 26 pin	
RCI P/N	CN-MS3124E1626P	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E16-26P	
Mating Connector	MS3116F16-26S RCI p/n CN-MS31161626S	
Mating Conn. Cap	MS3180-16-CA RCI p/n CN-MS3180-16CA	
Notes		

Pin	Description	Notes
A	Row 3	
B	Row 2	
C	Row 1	
D	Row 0	
E	Column 0	
F	Column 1	
G	Column 2	
H	Column 3	
J	Ground	
K		
L		
M		
N	+5 VDC	
P		
R		
S		
T		
U		
V		
W		
X		
Y		
Z	LED A	
a	LED B	
b		
c		

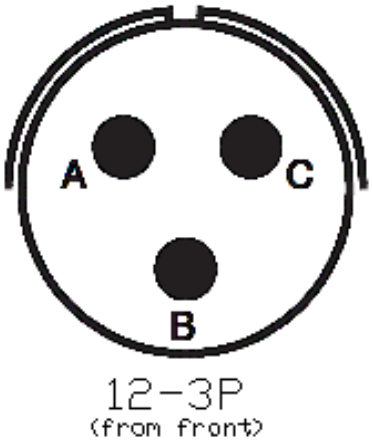
J7 - ACU GPS Connector

Reference Designator	J7 USER ACC	
Description	GPS Connector, 10 pin	
RCI P/N	CN-MS3124E1210S	
Manufacturer	Amphenol Industrial	
Manufacturer P/N	MS3124E12-10S	
Mating Connector	MS3116F12-10P RCI p/n CN-MS31161210P	
Mating Conn. Cap	MS3180-12-CA RCI p/n CN-MS3180-12CA	
Notes	GPS not supplied by RCI. GPS will be either DAGR or compatible unit such as the Rockwell Collins Polaris Guide. Additional connections may have to be defined.	

Pin	**Description**	**Notes**
A	+24V	
B	RS232 In from GPS	
C	RS232 Out to GPS	
D	Gnd	
E	Shield	
F	PPS	Not used internally in the RC4K.
G		
H		
J	IP Reset	To reset IP address: jumper pins J & K for 15 seconds
K	IP Reset	

J8 - AC Line Input

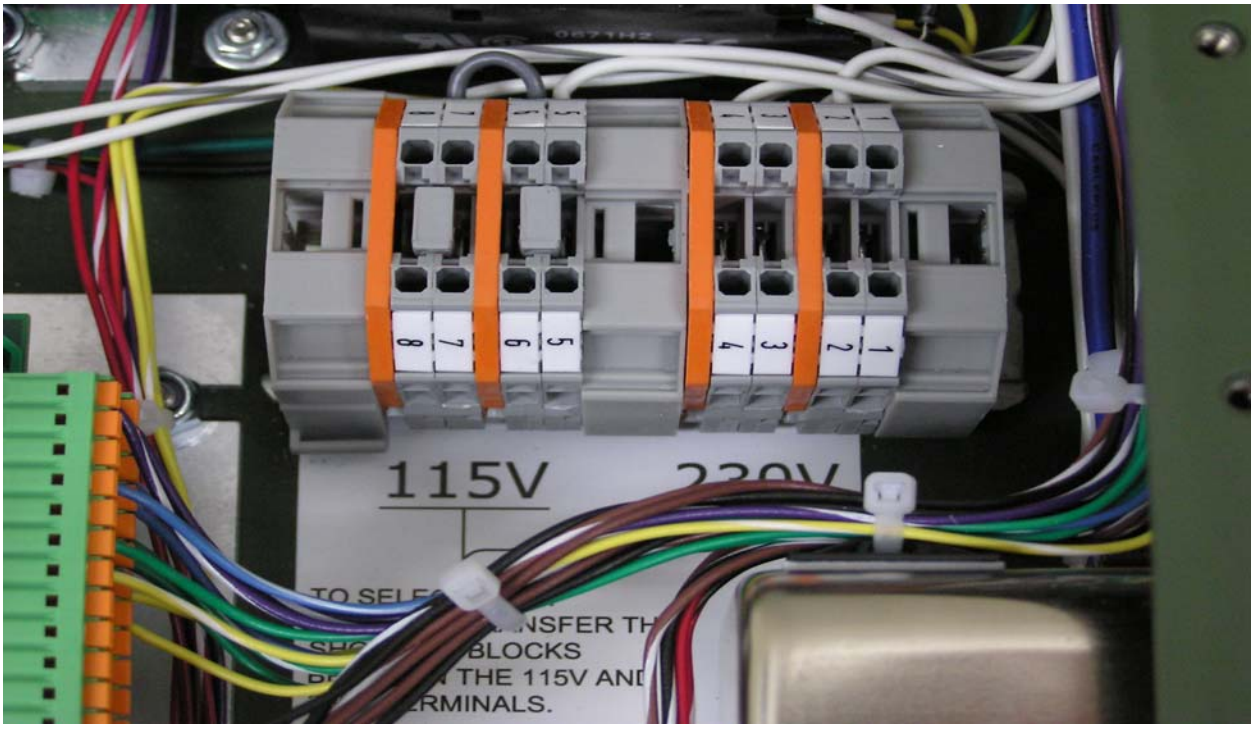
Reference	J8 POWER
Description	AC Mains Input
RCI P/N	CN-MS3124E12-3P
Manufacturer	Amphenol
Manufacturer P/N	MS3124E12-3P
Mating Connector	MS3116F12-3S
Mating Conn. Cap	MS3180-12-CA RCI p/n CN-MS3180-12CA
Notes	ACU supplied with AC Line Cord.



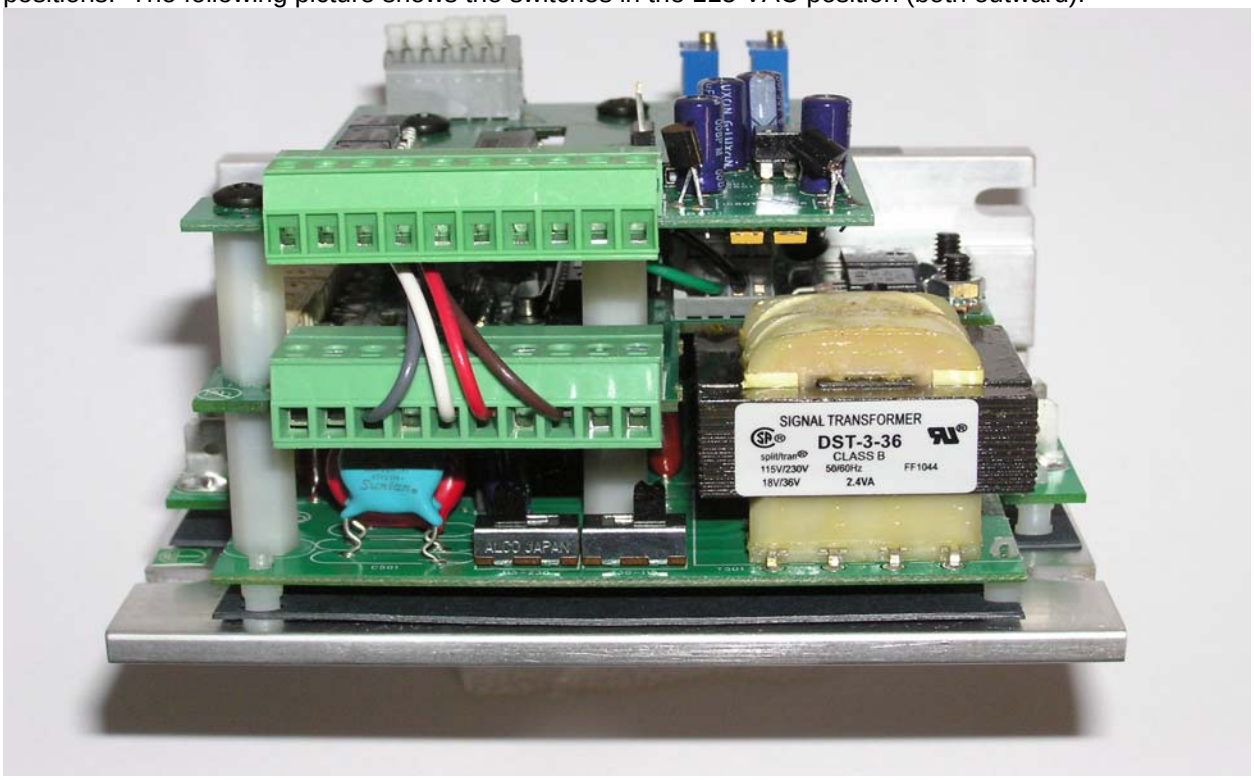
Pin	Description	Notes
A	Neutral	
B	Line	
C	Earth Ground	

Next to connector J8 are two fuse holders labeled FUSE1 and FUSE2. FUSE1 is associated with 115 & 230 VAC operation. FUSE2 is associated with 230 VAC operations only. The ACU may operate with 115 or 230 VAC input but must be configured internally for the desired power input.

The first modification requires placing jumpers in a shorting block. The following picture shows the jumpers in the 115 VAC position.



The second modification involves placing two switches on the motor drive module in their correct positions. The following picture shows the switches in the 115 VAC position (both outward).



To place the drive module in the 230 position, move both switches to their inward position.

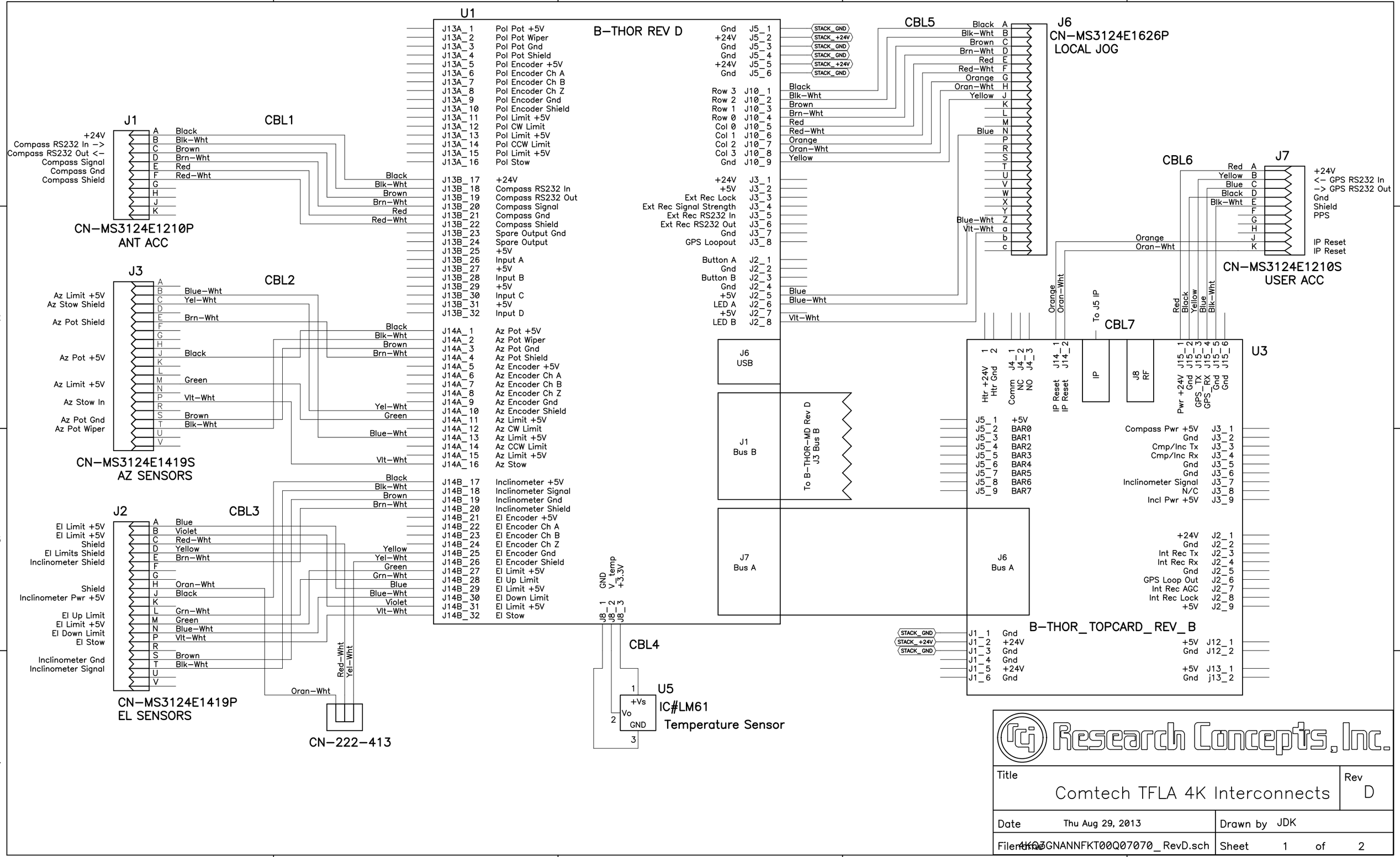
3.0 ELECTRICAL

3.1 System Interface

Please refer to the main RC4000 User Manual to become familiar with specific capabilities and functionality of the RC4000 PCB board stack.

3.2 Internal Wiring

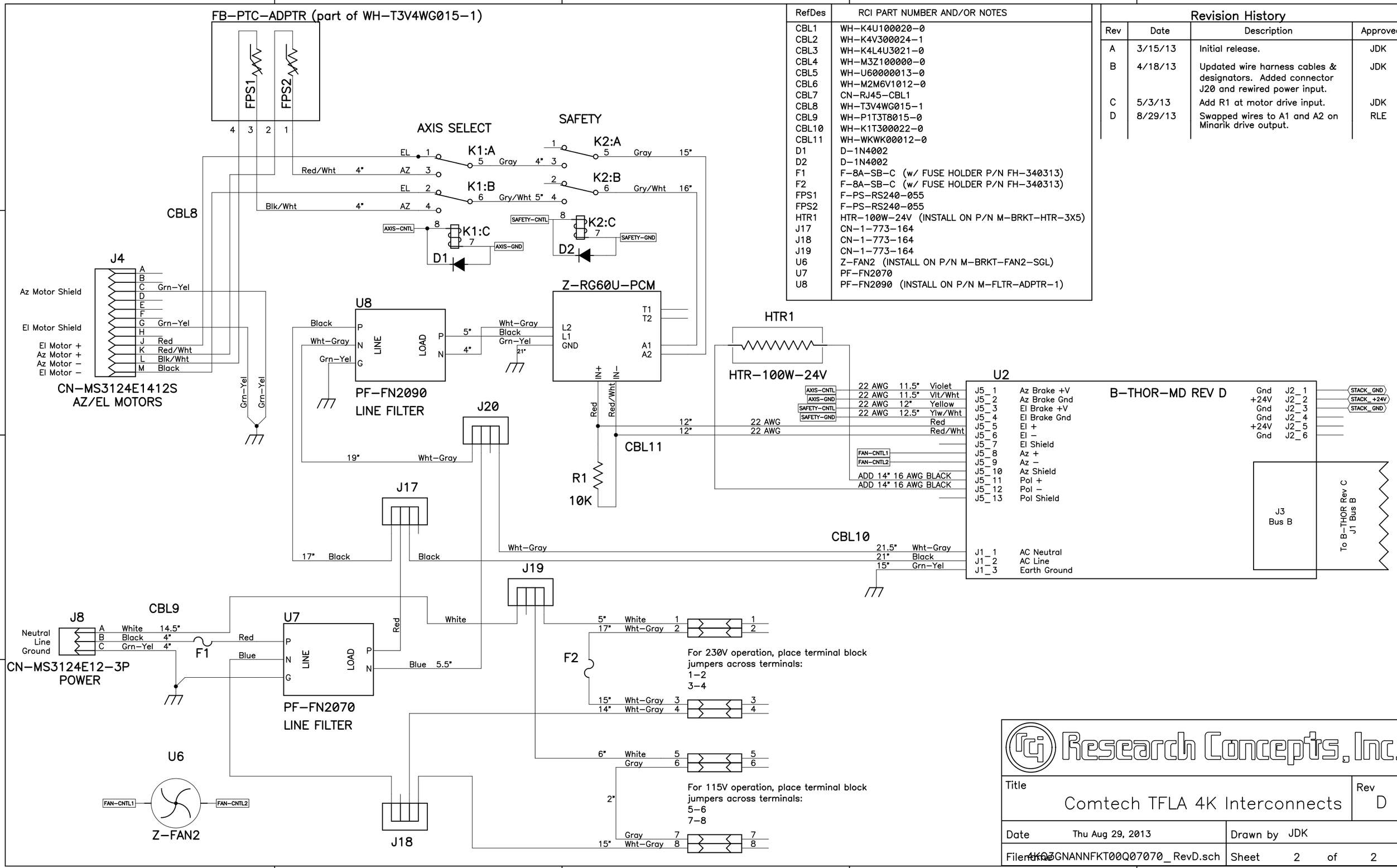
The following diagram shows the interconnections of the internal wiring to the enclosure.
For a more detailed explanation of functions of individual pins, please refer to the main RC4000 User Manual.


U1
B-THOR REV D
J1
CBL1
CN-MS3124E1210P
ANT ACC
J3
CBL2
CN-MS3124E1419S
AZ SENSORS
J2
CBL3
CN-MS3124E1419P
EL SENSORS
CN-222-413
CBL4
U5
IC#LM61
Temperature Sensor
J6
USB
J1
Bus B
J7
Bus A
J6
Bus A
CBL5
J6
CN-MS3124E1626P
LOCAL JOG
CBL6
J7
CN-MS3124E1210S
USER ACC
CBL7
U3
B-THOR_TOPCARD_REV_B
To B-THOR-MD Rev D
J3 Bus B
Research Concepts, Inc.
Title
Comtech TFLA 4K Interconnects
Rev
D
Date
Thu Aug 29, 2013
Drawn by
JDK
Filename
4KQ3GNANNFKT00Q07070_ RevD.sch
Sheet
1
of
2

RefDes	RCI PART NUMBER AND/OR NOTES
CBL1	WH-K4U100020-0
CBL2	WH-K4V300024-1
CBL3	WH-K4L4U3021-0
CBL4	WH-M3Z100000-0
CBL5	WH-U60000013-0
CBL6	WH-M2M6V1012-0
CBL7	CN-RJ45-CBL1
CBL8	WH-T3V4WG015-1
CBL9	WH-P1T3T8015-0
CBL10	WH-K1T300022-0
CBL11	WH-WKWK00012-0
D1	D-1N4002
D2	D-1N4002
F1	F-8A-SB-C (w/ FUSE HOLDER P/N FH-340313)
F2	F-8A-SB-C (w/ FUSE HOLDER P/N FH-340313)
FPS1	F-PS-RS240-055
FPS2	F-PS-RS240-055
HTR1	HTR-100W-24V (INSTALL ON P/N M-BRKT-HTR-3X5)
J17	CN-1-773-164
J18	CN-1-773-164
J19	CN-1-773-164
U6	Z-FAN2 (INSTALL ON P/N M-BRKT-FAN2-SGL)
U7	PF-FN2070
U8	PF-FN2090 (INSTALL ON P/N M-FLTR-ADPTR-1)

Revision History

Rev	Date	Description	Approved
A	3/15/13	Initial release.	JDK
B	4/18/13	Updated wire harness cables & designators. Added connector J20 and rewired power input.	JDK
C	5/3/13	Add R1 at motor drive input.	JDK
D	8/29/13	Swapped wires to A1 and A2 on Minarik drive output.	RLE



Research Concepts, Inc.

Title	Comtech TFLA 4K Interconnects	Rev D
Date	Thu Aug 29, 2013	Drawn by JDK
Filename	4KQ3GNANNFKT00Q07070_RevD.sch	Sheet 2 of 2