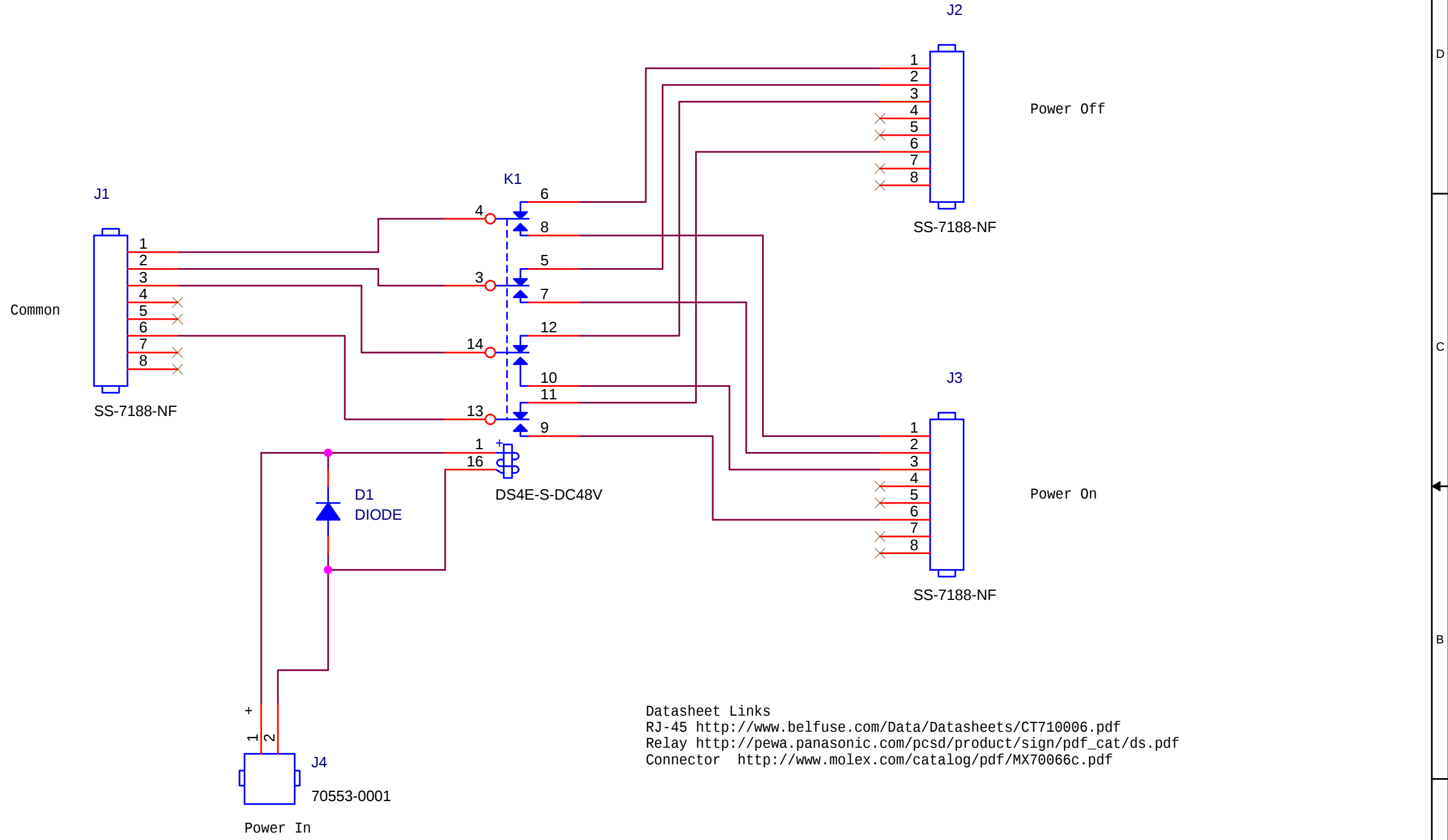
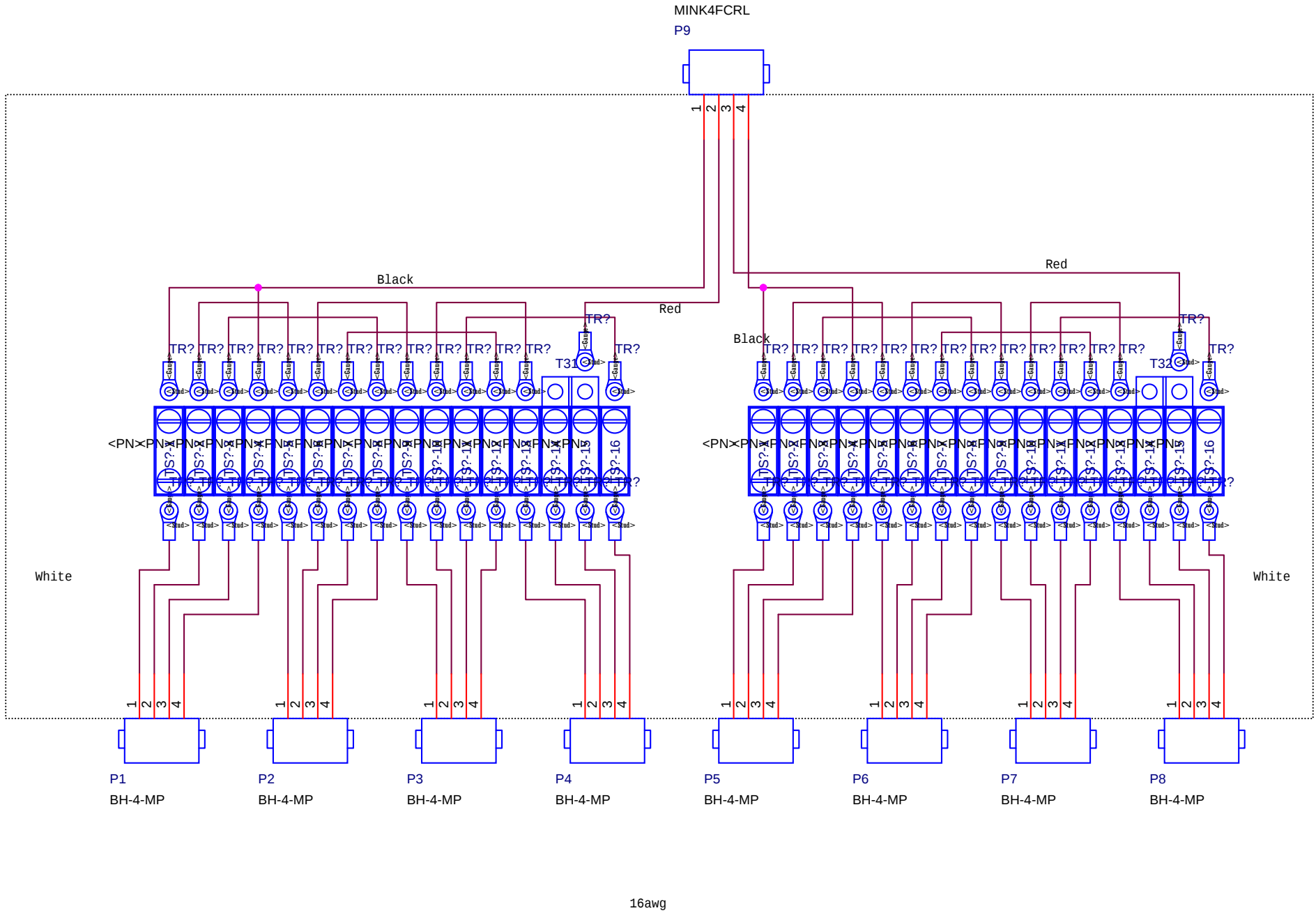




Datasheet Links
RJ-45 <http://www.belfuse.com/Data/Datasheets/CT710006.pdf>
Relay http://pewa.panasonic.com/pcsd/product/sign/pdf_cat/ds.pdf
Connector <http://www.molex.com/catalog/pdf/MX70066c.pdf>

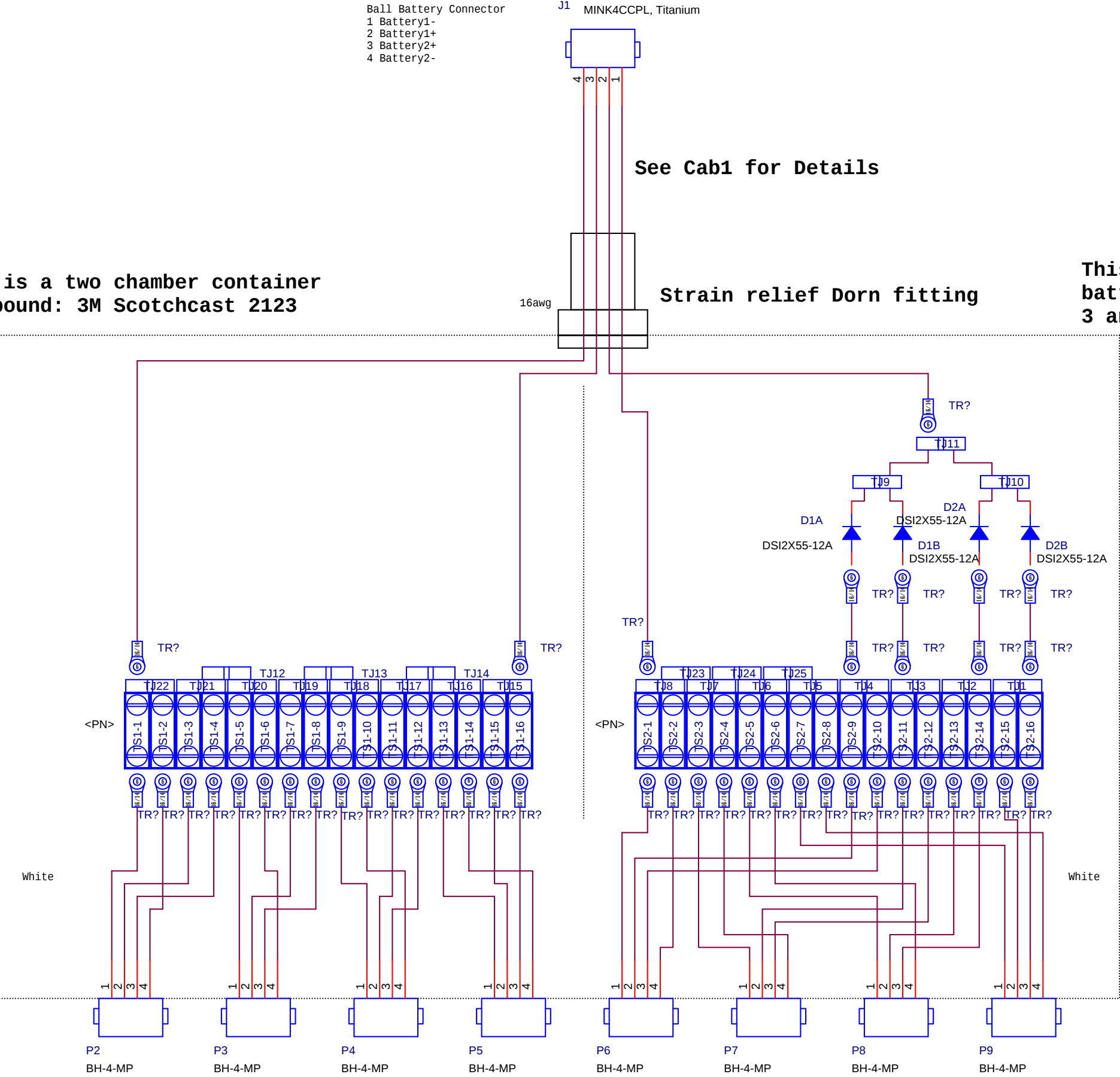


		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title Battery Combiner		Project ESP	
Engineer SJensen	Size B	Document Number <Doc>	Part Number <Part Number>	Project File DWSM4km	Rev 0.0
Designer <Designer>		Date: Wednesday, March 16, 2011		Sheet 1 of 1	

Potting Box is a two chamber container
Potting Compound: 3M Scotchcast 2123

See Cab1 for Details

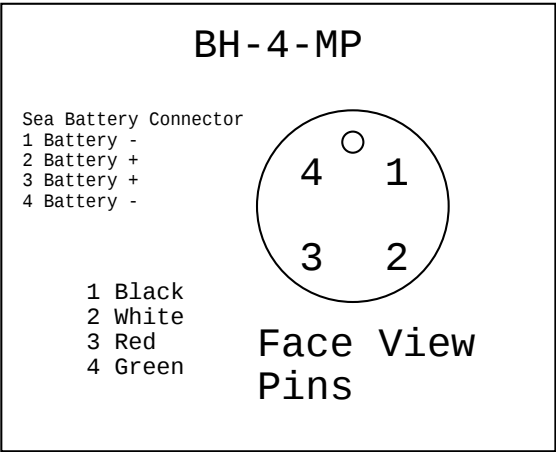
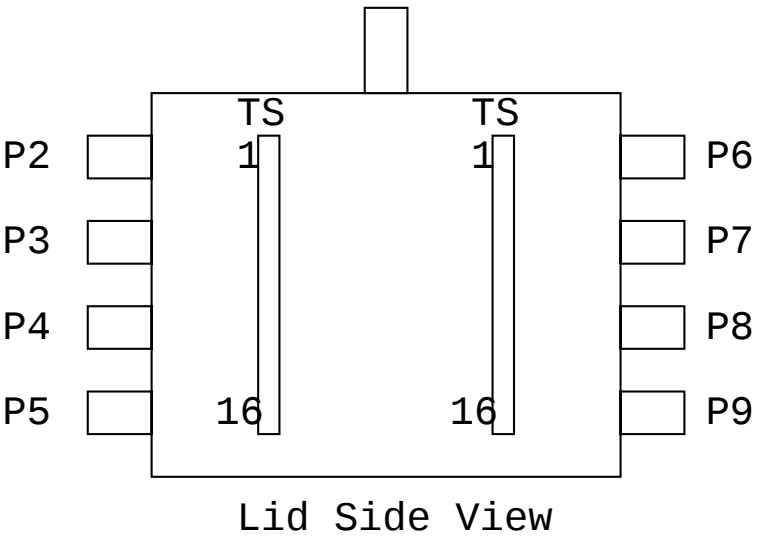
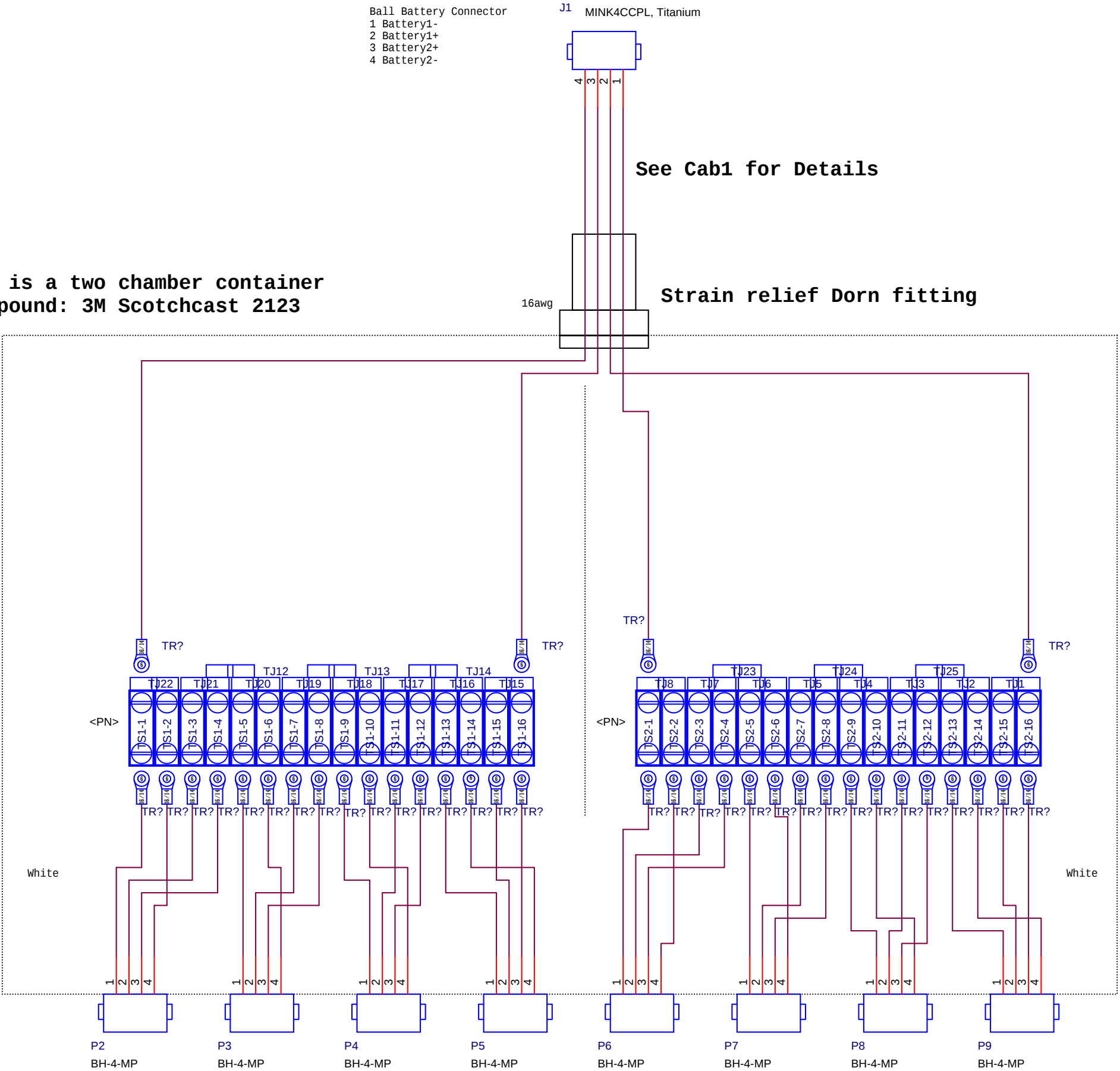
This half configured for paralleled 24V
batteries for a combined 24V out across pins
3 and 4.



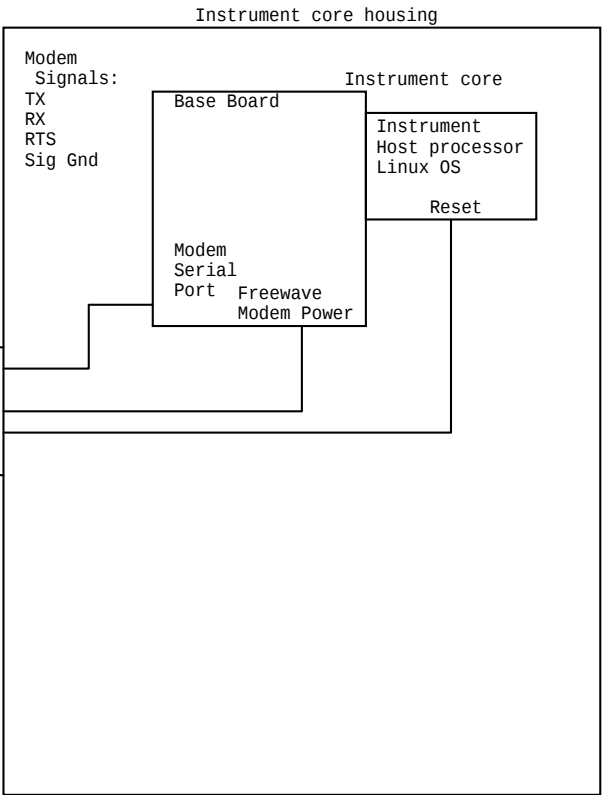
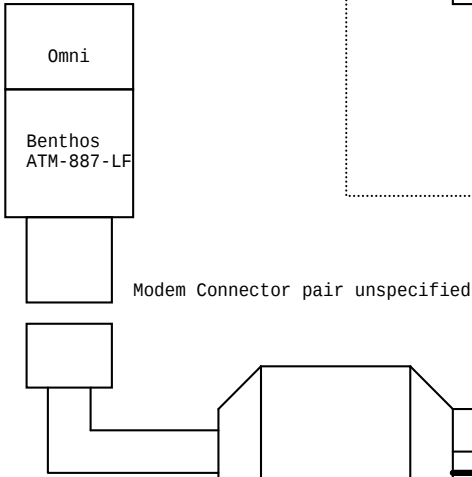
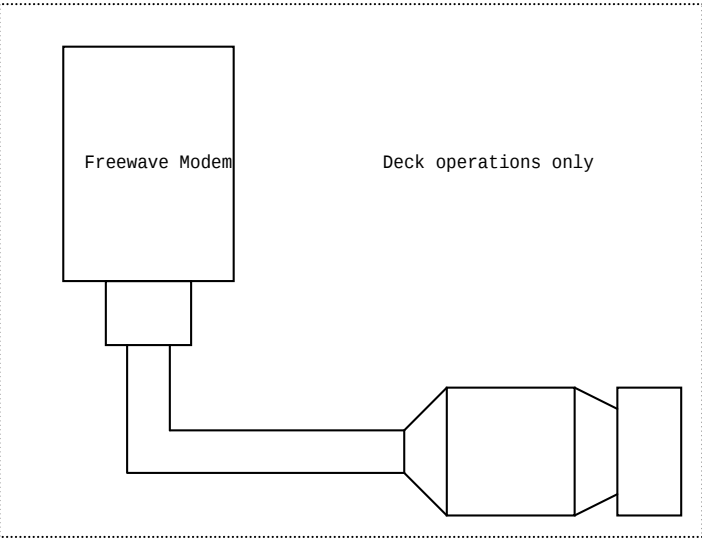
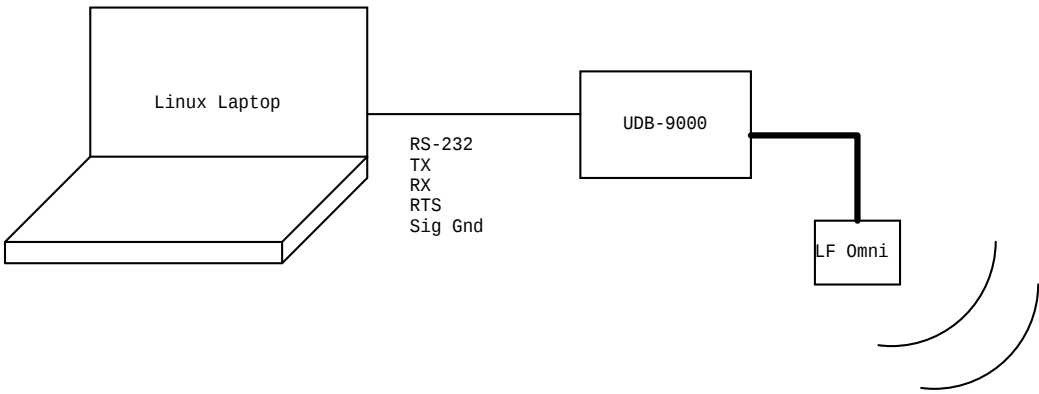
DSI2X55-12A

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039		
		Title Battery Combiner 12Vbat		Project <Project>
Engineer <Engineer>	Size B	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>
Designer <Designer>	Date:	Wednesday, March 16, 2011	Sheet 1 of 1	Rev 0.0

Potting Box is a two chamber container
Potting Compound: 3M Scotchcast 2123



		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039		
		Title Battery Combiner 2x 48Vbat	Project ESP	
Engineer SJensen	Size B	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj
Designer <Designer>	Date:	Wednesday, March 16, 2011	Sheet 1 of 1	Rev 0.1



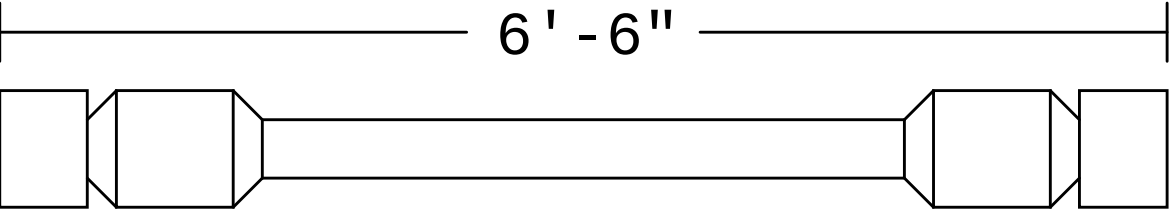
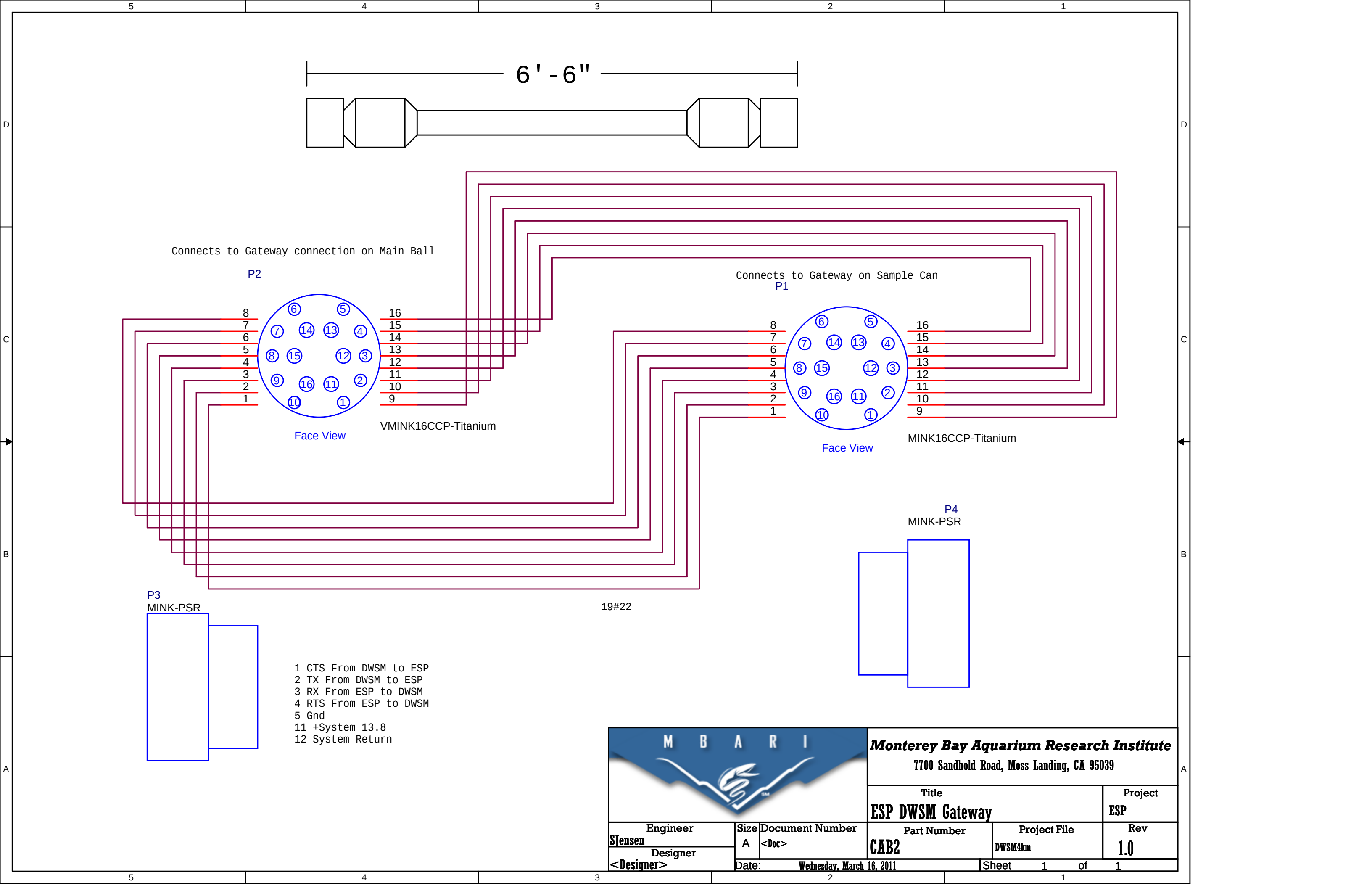
Impulse RMA connectors

Burn wire

Burn Return

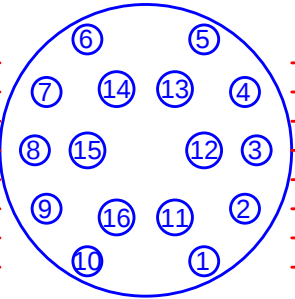
Notes:
REV 1: Burn wire monitoring and handshaking removed

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039		
		Title ESP Benthos Modem System		Project ESP
Engineer SJensen	Size B	Document Number <Doc>	Part Number -	Project File dwsm4km.opj
Designer	Date:	Wednesday, March 16, 2011	Sheet 1 of 1	Rev 1.0



Connects to Gateway connection on Main Ball

P2

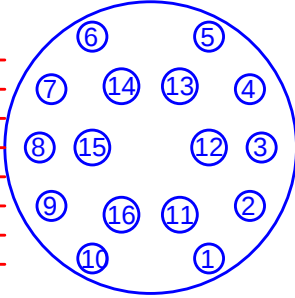


Face View

VMINK16CCP-Titanium

Connects to Gateway on Sample Can

P1



Face View

MINK16CCP-Titanium

P4
MINK-PSR

P3
MINK-PSR

- 1 CTS From DWSM to ESP
- 2 TX From DWSM to ESP
- 3 RX From ESP to DWSM
- 4 RTS From ESP to DWSM
- 5 Gnd
- 11 +System 13.8
- 12 System Return



Monterey Bay Aquarium Research Institute
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Title
ESP DWSM Gateway

Project
ESP

Engineer
Stensen

Size
A

Document Number
<Doc>

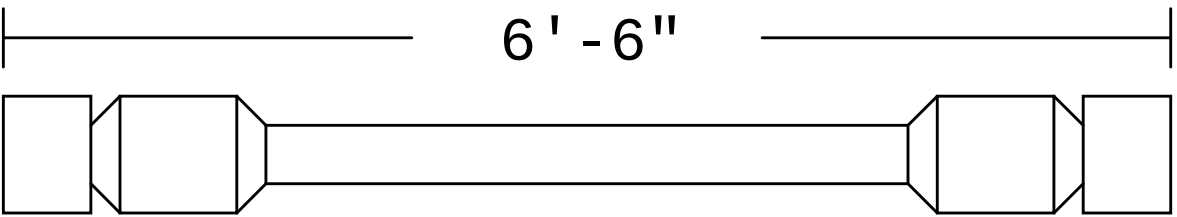
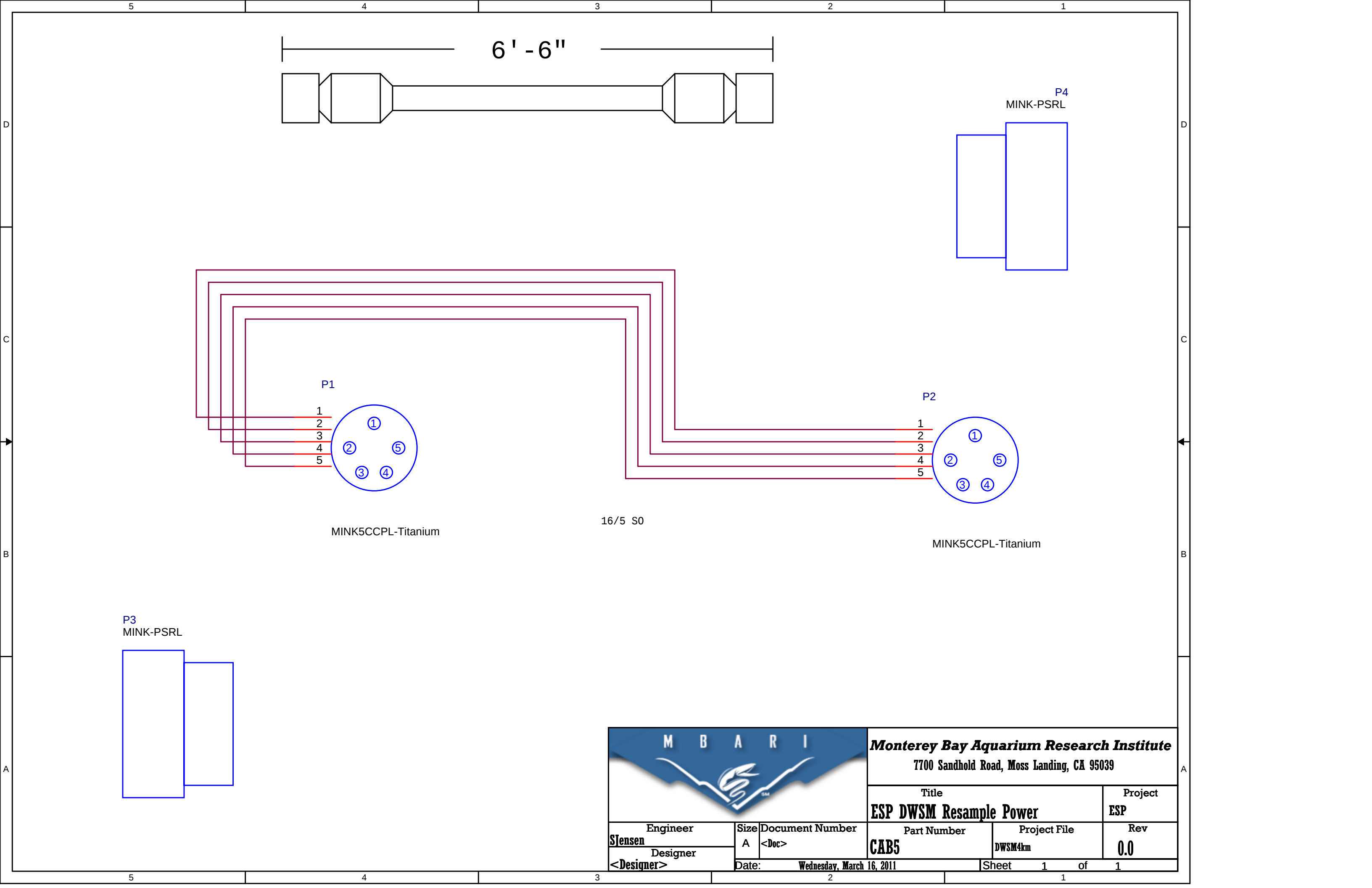
Part Number
CAB2

Project File
DWSM4km

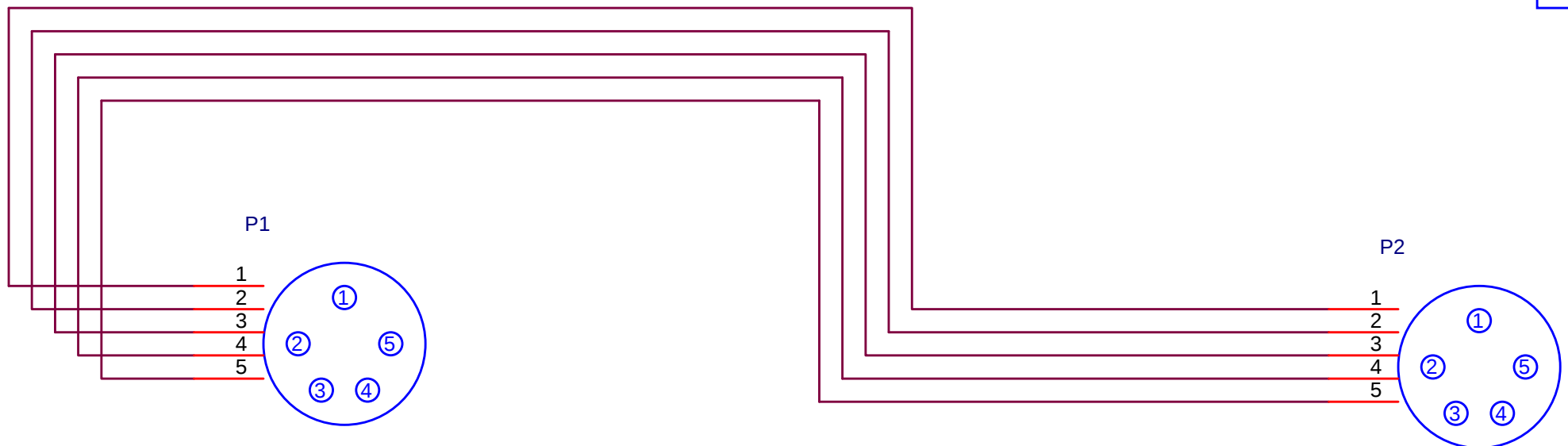
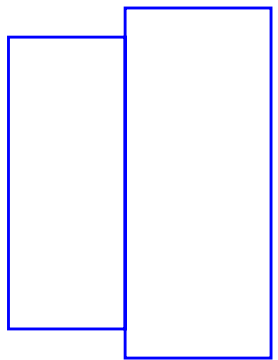
Rev
1.0

Designer
<Designer>

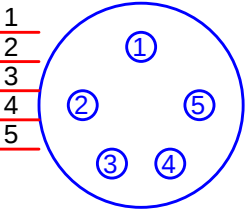
Date: **Wednesday, March 16, 2011** Sheet **1** of **1**



P4
MINK-PSRL

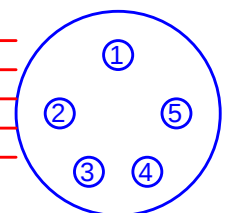


P1



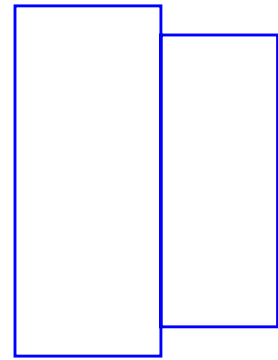
MINK5CCPL-Titanium

P2

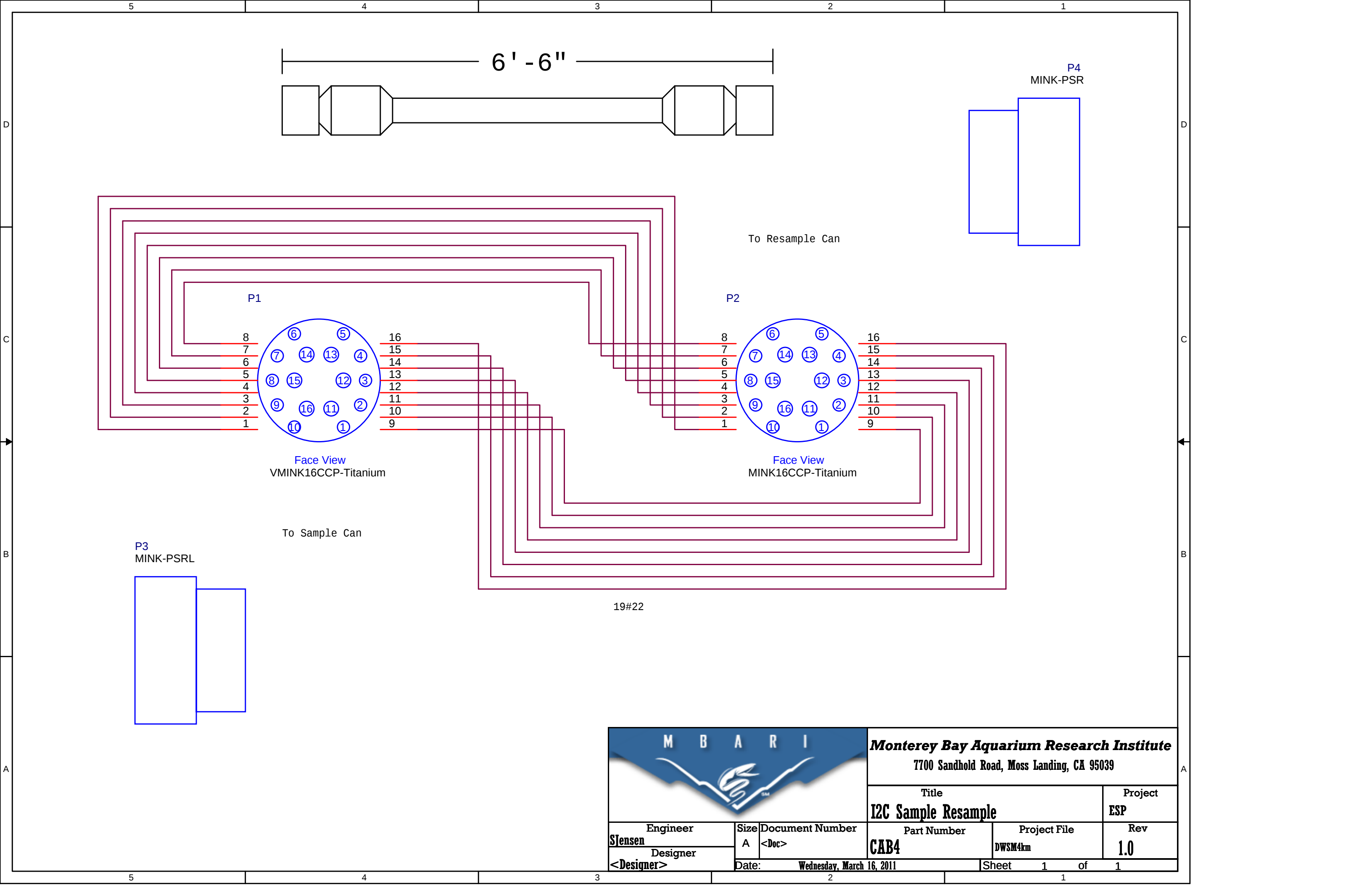


MINK5CCPL-Titanium

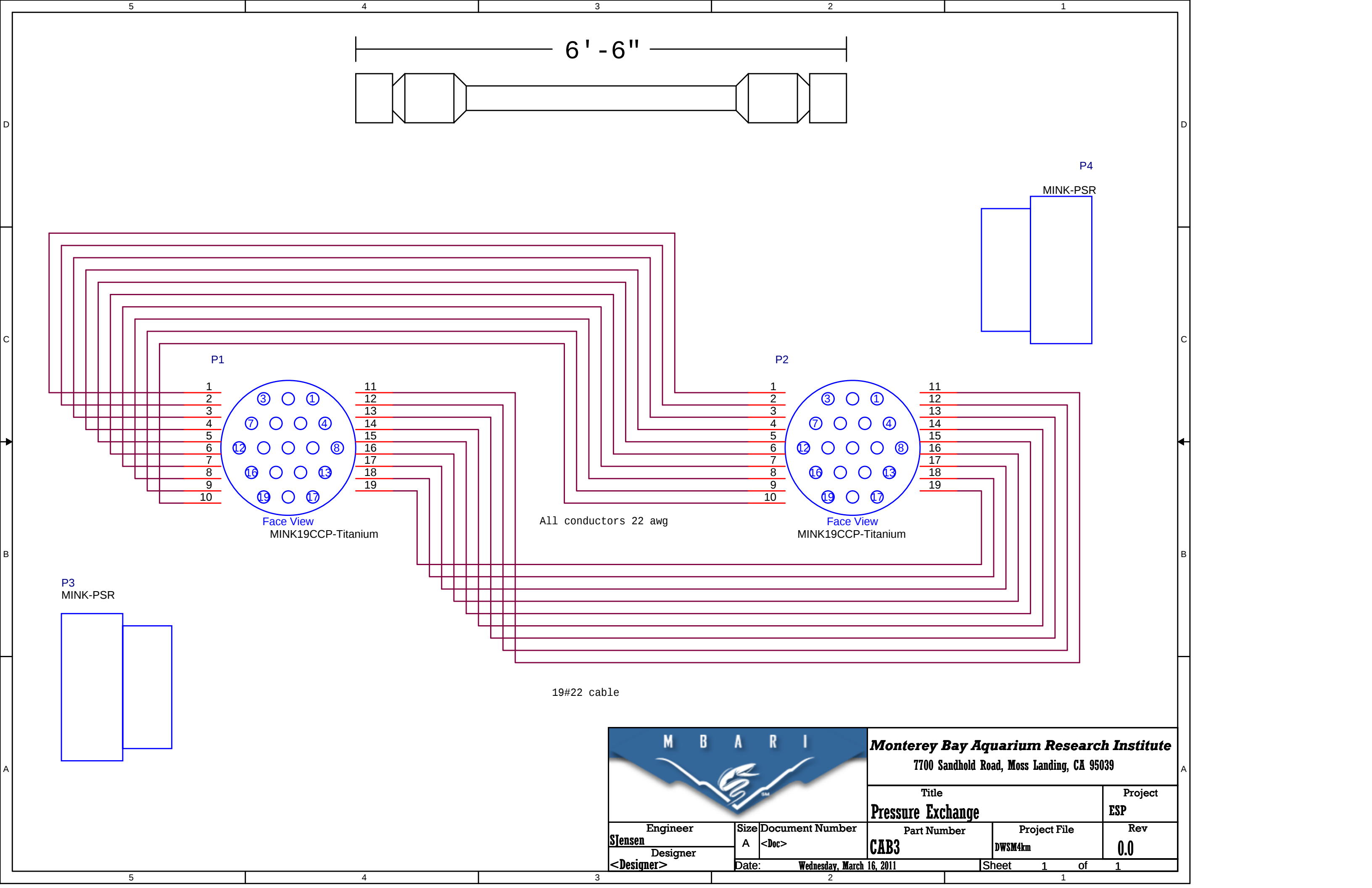
P3
MINK-PSRL



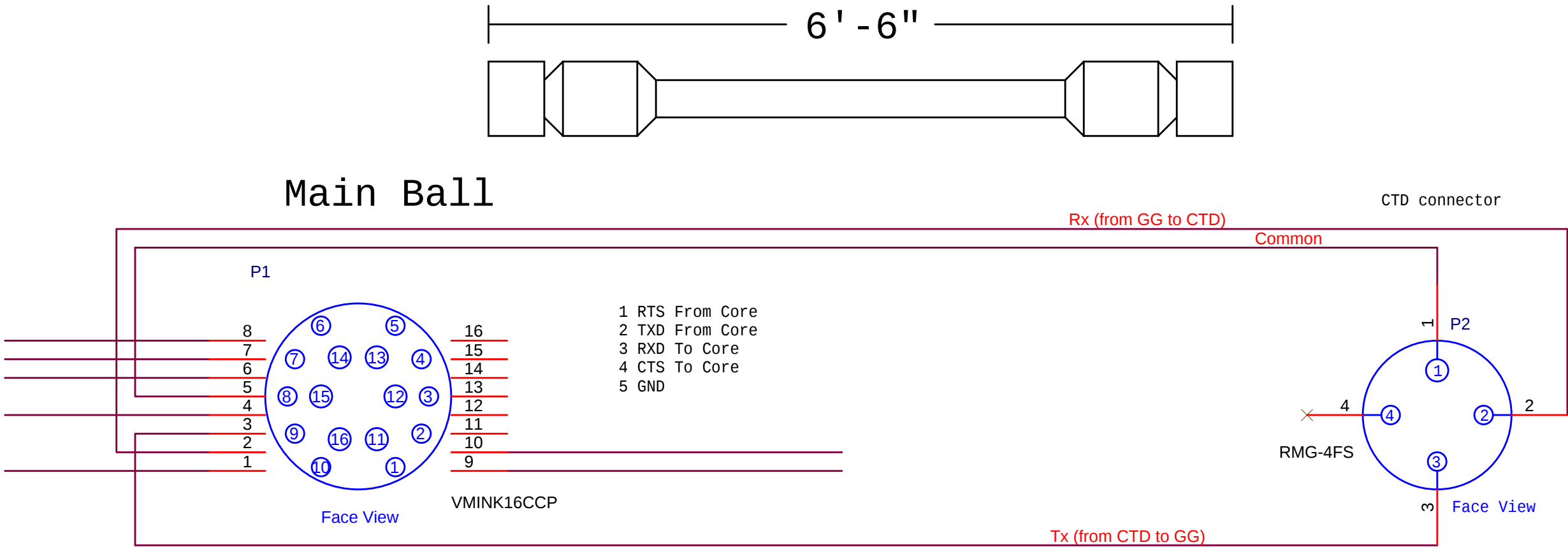
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		Title ESP DWSM Resample Power		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB5	Project File DWSM4km	Rev 0.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039				
Title I2C Sample Resample			Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB4	Project File DWSM4km
Designer <Designer>	Date: Wednesday, March 16, 2011		Sheet 1 of 1	Rev 1.0



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039				
Title Pressure Exchange			Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB3	Project File DWSM4km
Designer <Designer>	Date: Wednesday, March 16, 2011		Rev 0.0	Sheet 1 of 1

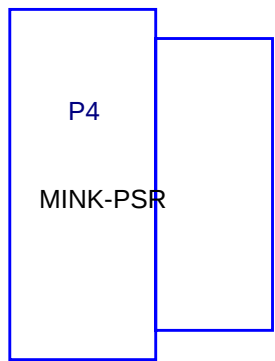
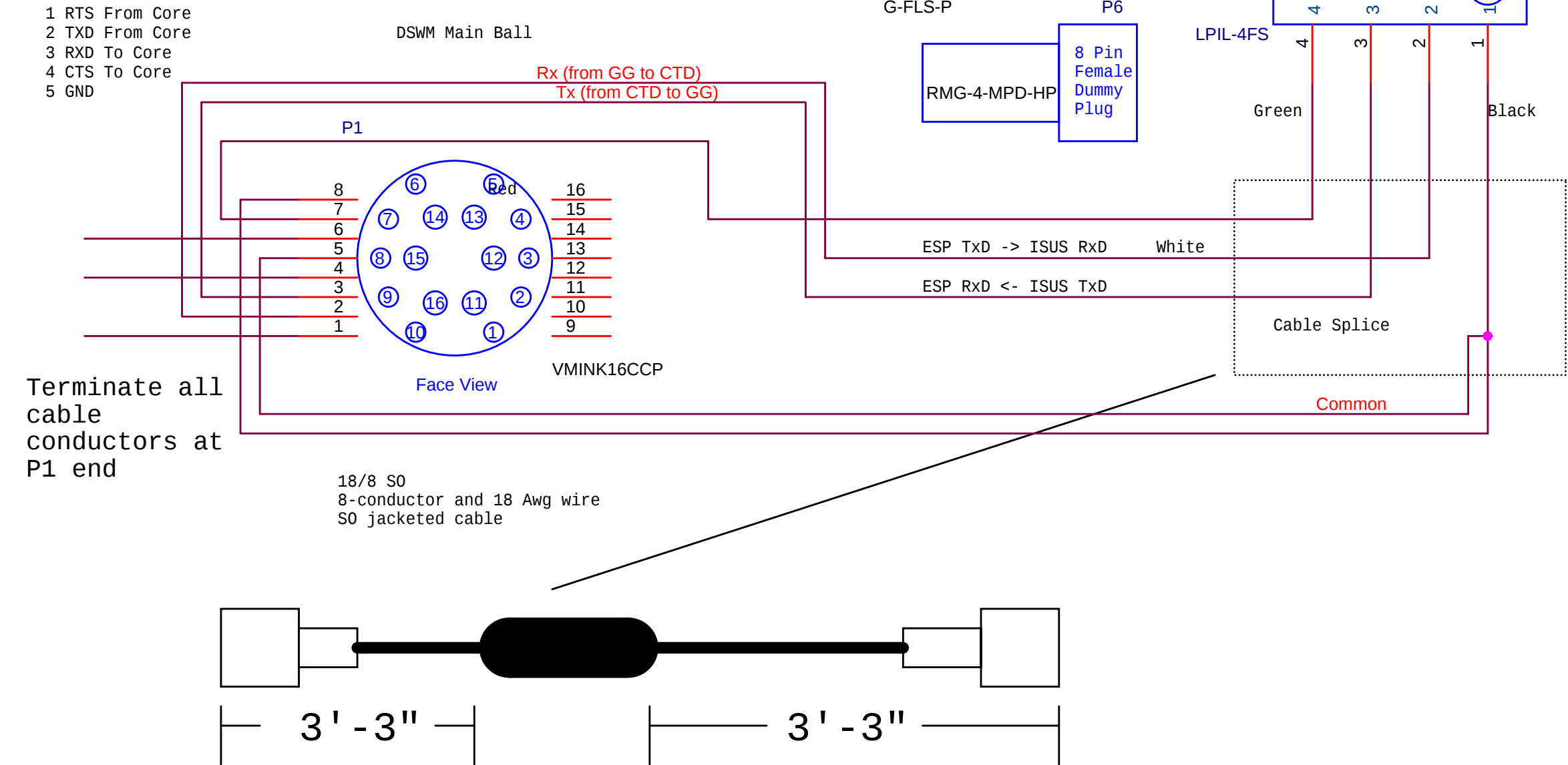


Terminate all
cable
conductors at
P1 end

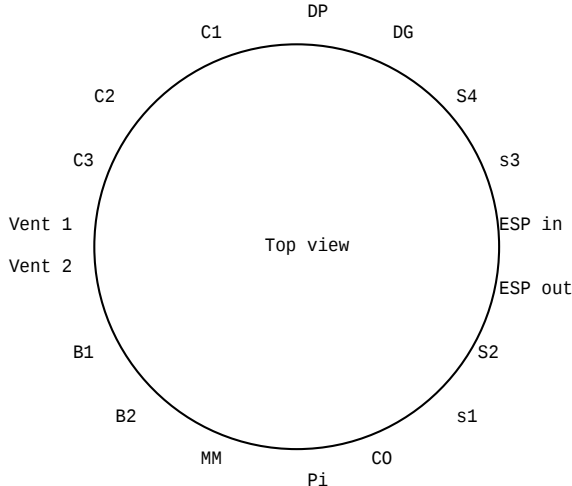
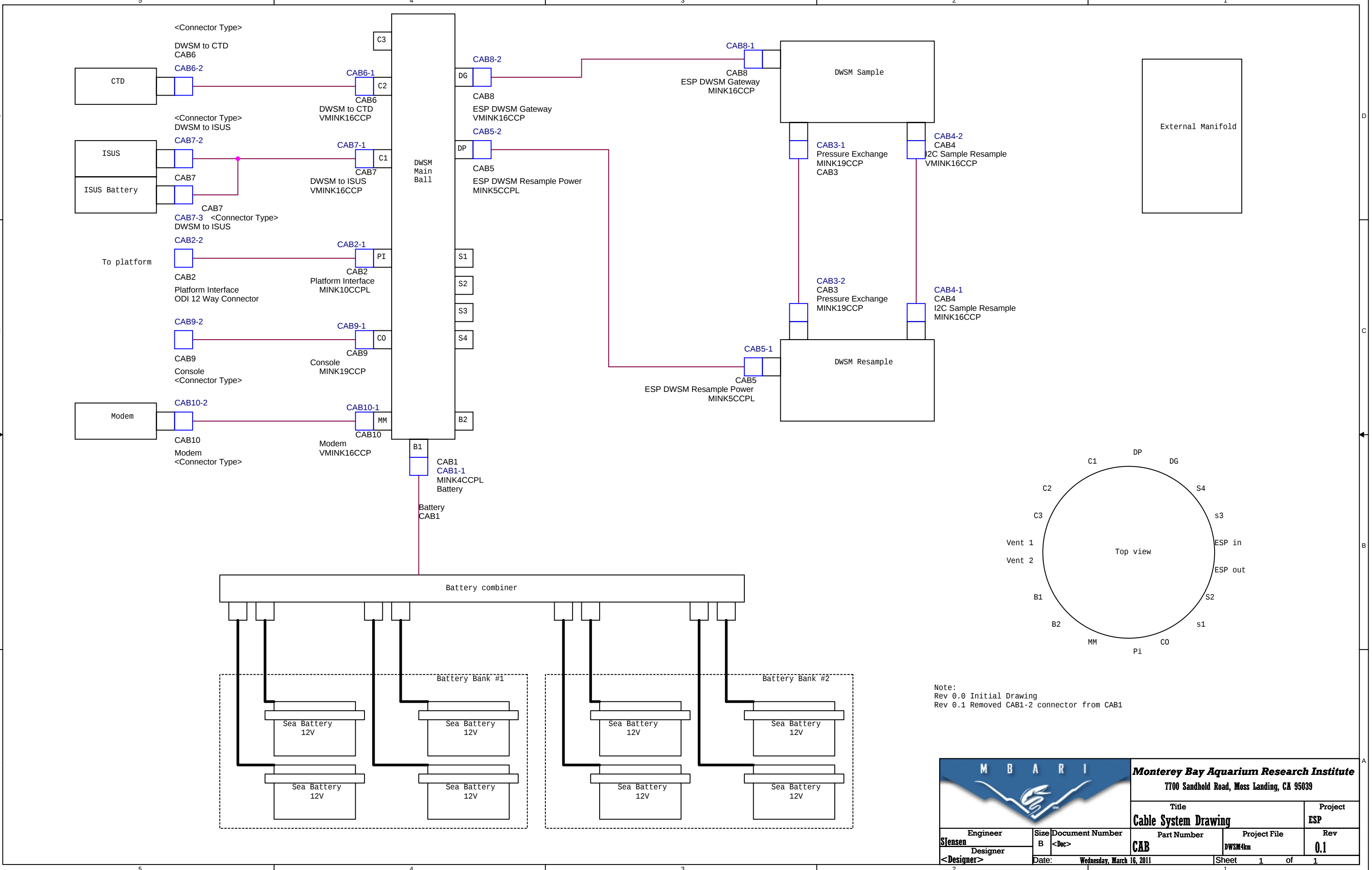
P3
MINK-PSR

10#22

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039		
		Title Main Ball to CTD		Project ESP
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB6	Project File DWSM4km
Designer <Designer>	Date: Wednesday, March 16, 2011		Sheet 1 of 1	Rev 1.0

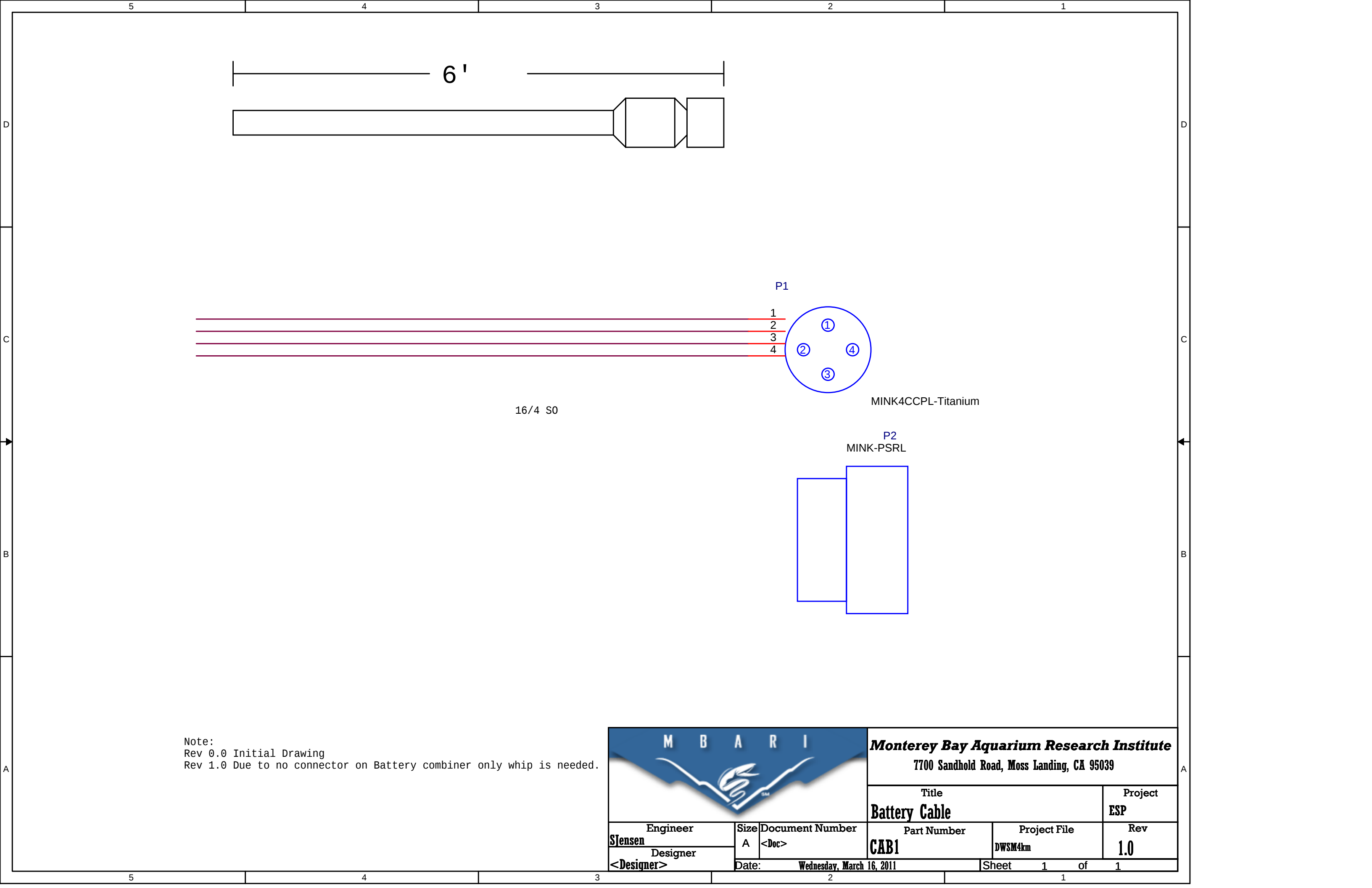


			Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039		
			Title Main Ball to ISUS		Project ESP
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB7	Project File DWSM4km	Rev 1.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1	of 1



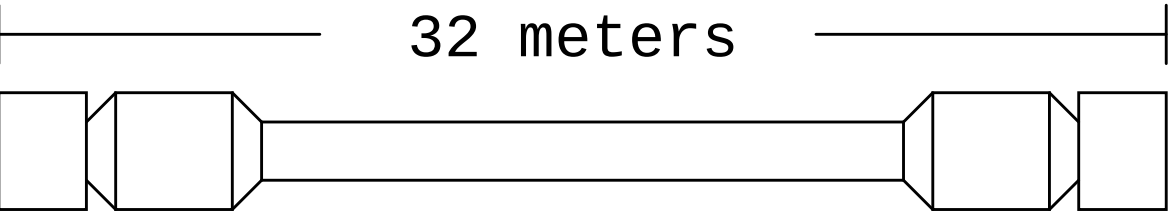
Note:
Rev 0.0 Initial Drawing
Rev 0.1 Removed CAB1-2 connector from CAB1

			Monterey Bay Aquarium Research Institute		
			7700 Sandhold Road, Moss Landing, CA 95039		
			Title Cable System Drawing		Project ESP
Engineer SJensen	Size B	Document Number <Doc>	Part Number CAB	Project File DWSM4km	Rev 0.1
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	



Note:
Rev 0.0 Initial Drawing
Rev 1.0 Due to no connector on Battery combiner only whip is needed.

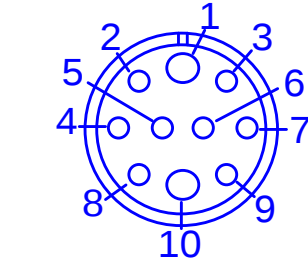
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		Title Battery Cable		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB1	Project File DWSM4km	Rev 1.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	



32 Meter Cable (Orange)
Falmat PN# FM122203-1CP Rev A

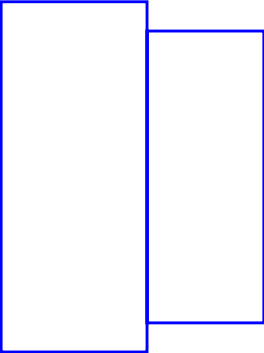
ODI 12 Way
Connector

MINK-10-CCP/L



MINK-10-CCP/L

P3
MINK-PSRL



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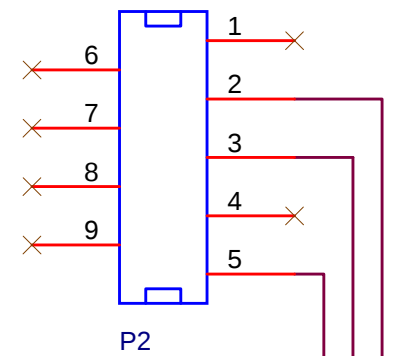
Title Platform Interface		Project ESP
------------------------------------	--	-----------------------

Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB8	Project File DWSM4km	Rev 0.0
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Date: Wednesday, March 16, 2011			Sheet 1 of 1		
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Console In

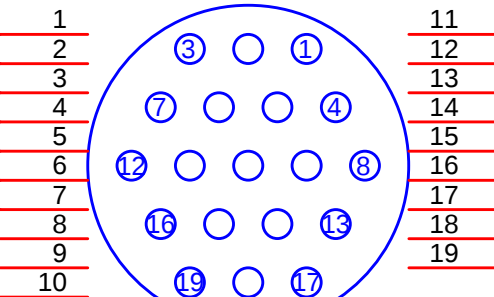
CONN DSUB 9-S



P2

All interconnector lengths from P1 are 6'

P1

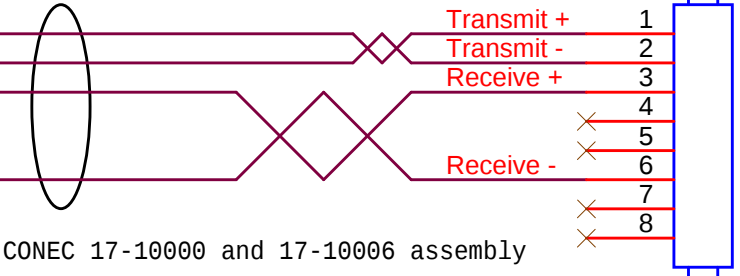


Face View

MINK19CCP

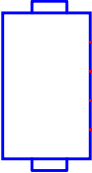
Auxiliary Ethernet Out

P4



RJ-45

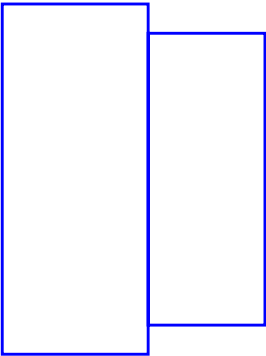
P3



USB cable assembly

USB cable Assembly

P3
MINK-PSR



Ball CO connector	Function	Direction
1	Sig Gnd	Gnd
2	RX	In
3	TX	Out
4	Vcc	Power
5	D-	I/O
6	D+	I/O
7	Gnd	Gnd
8	TBD	--
9	TBD	--
10	TBD	--
11	TBD	--
12	TBD	--
13	Eth Tx+	In
14	Eth Tx-	In
15	Eth Rx+	Out
16	Eth Rx-	Out
17	TBD	--
18	TBD	--
19	TBD	--



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Engineer
Stensen
Designer
<Designer>

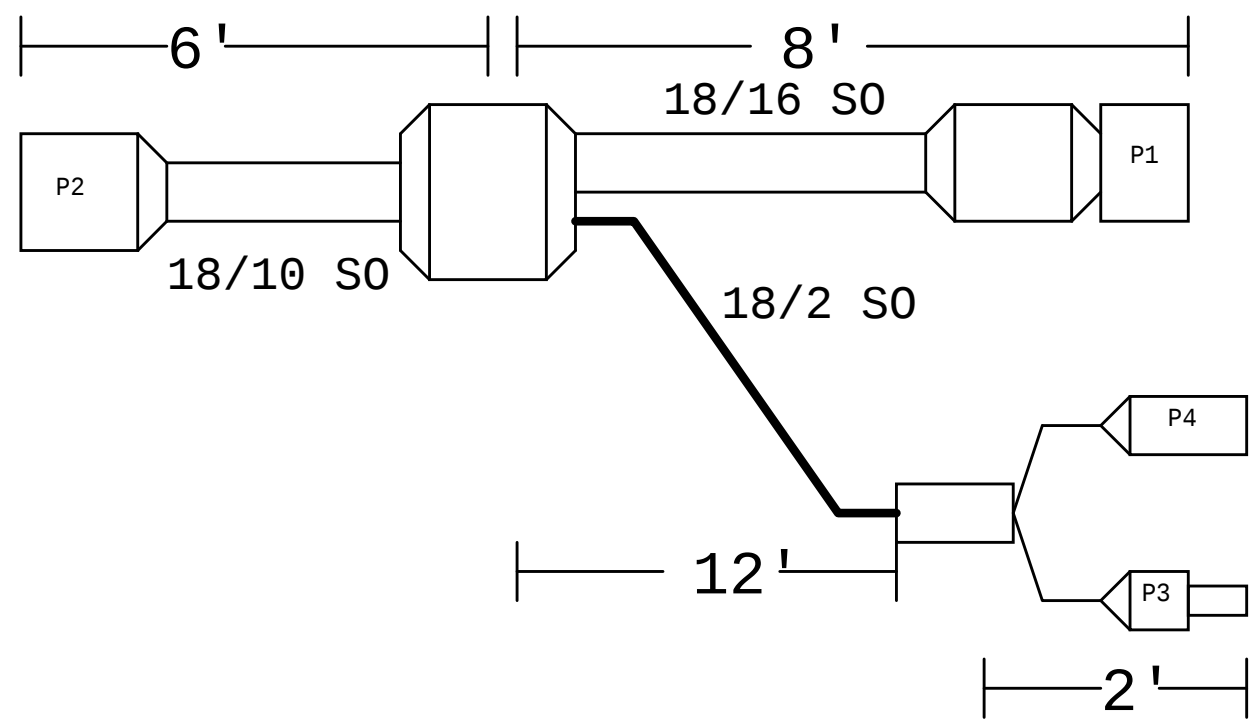
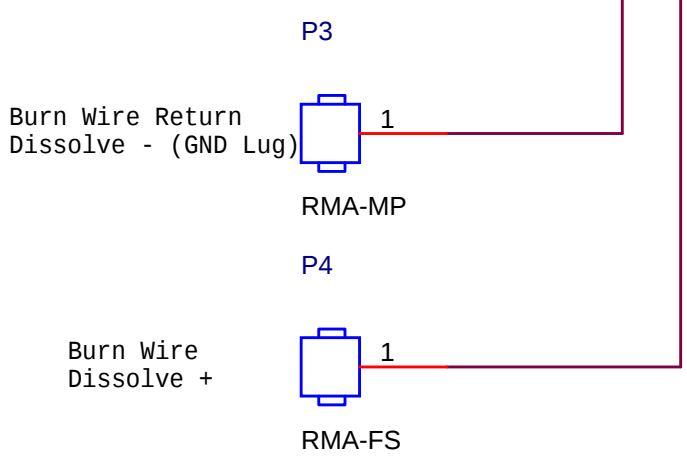
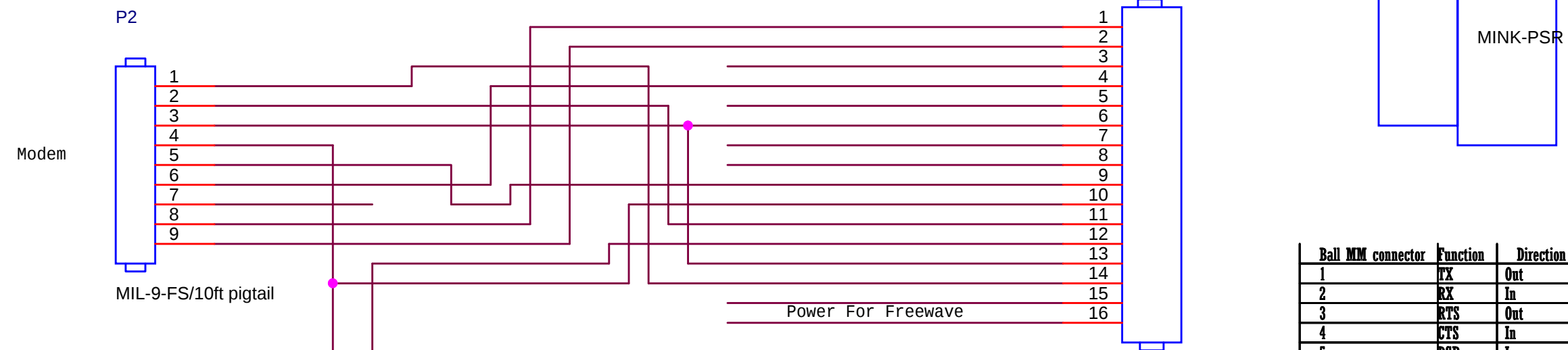
Size
A
Document Number
<Doc>
Date: **Wednesday, March 16, 2011**

Part Number
CAB9

Project File
DWSM4km

Project
ESP
Rev
0.2

Sheet 1 of 1

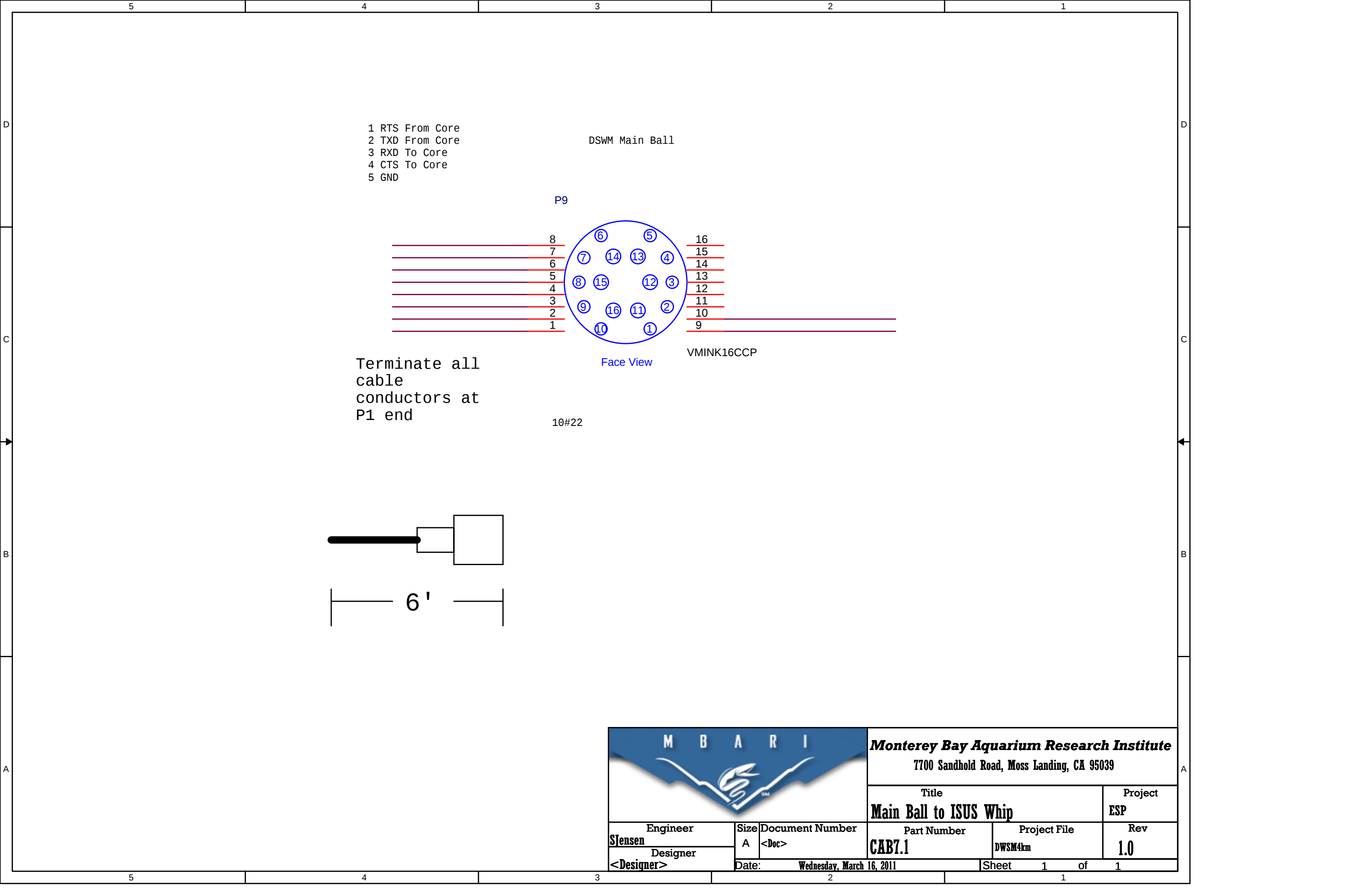


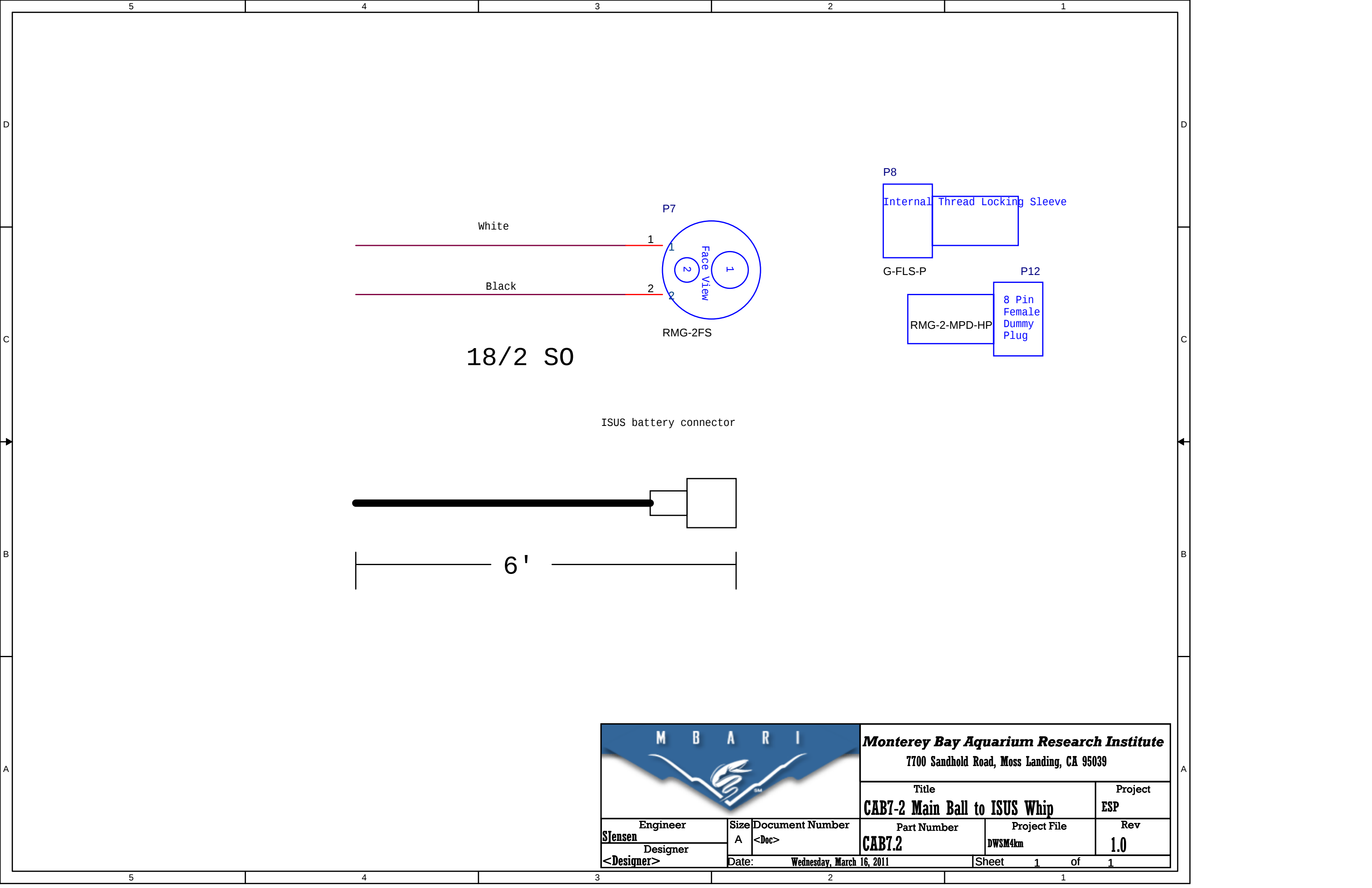
ATM-887 Modem	Function	Direction
1	Power	To Modem
2	Dissolve+	From Modem
3	GND	Gnd
4	Dissolve-	From Modem
5	DE	Modem to Host
6	RTS	Modem to Host
7	TX(-) (422)	Modem to Host
8	RXD	Host to Modem
9	TXD	Modem to host



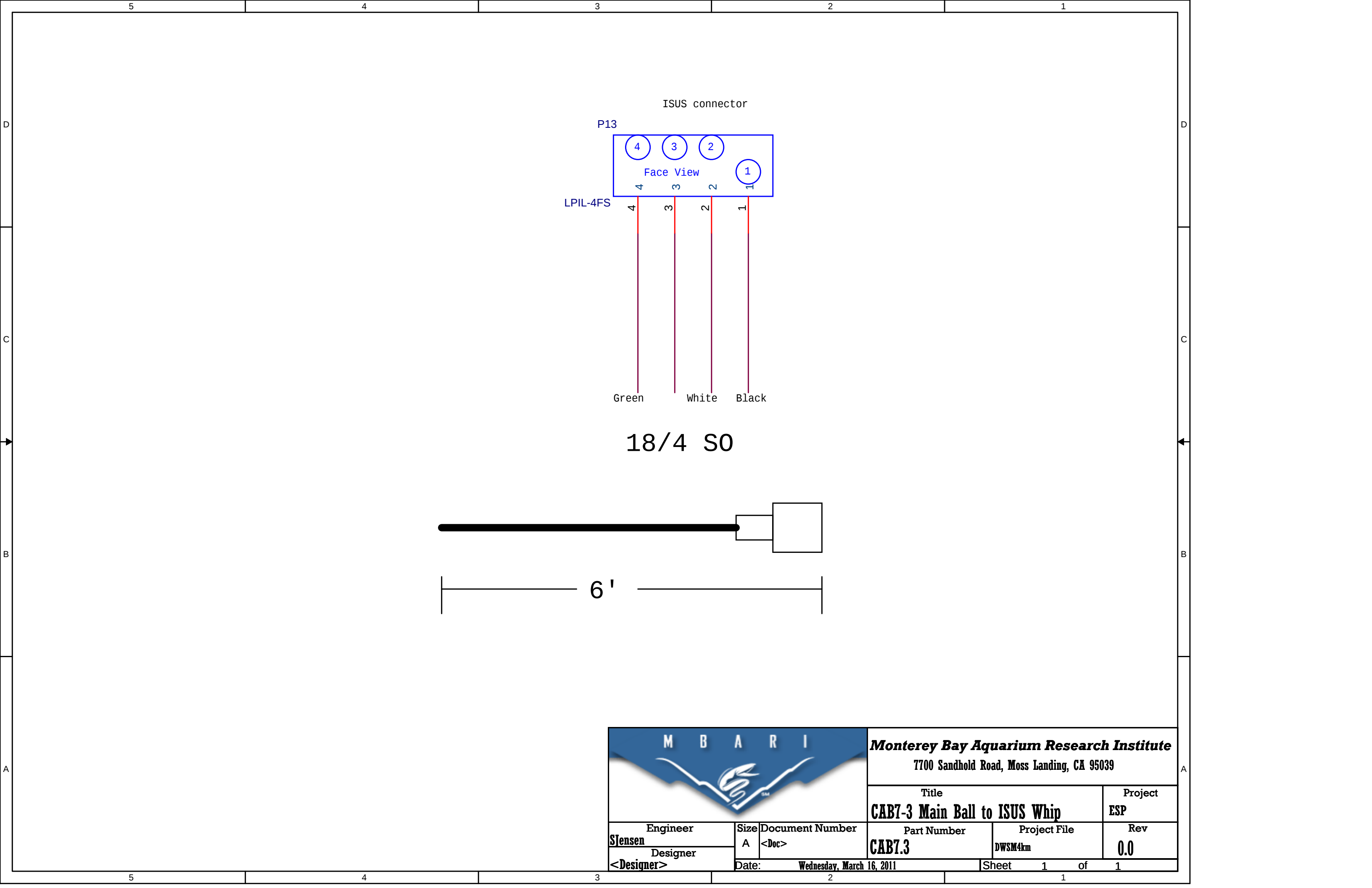
Monterey Bay Aquarium Research Institute
7700 Sandhold Road, Moss Landing, CA 95039

Title		Project	
Modem Cable		ESP	
Engineer	Size	Document Number	Part Number
Stensen	A	<Doc>	CAB10
Designer	Date:		Project File
<Designer>	Wednesday, March 16, 2011		dws4km.opj
Sheet		1	of 1

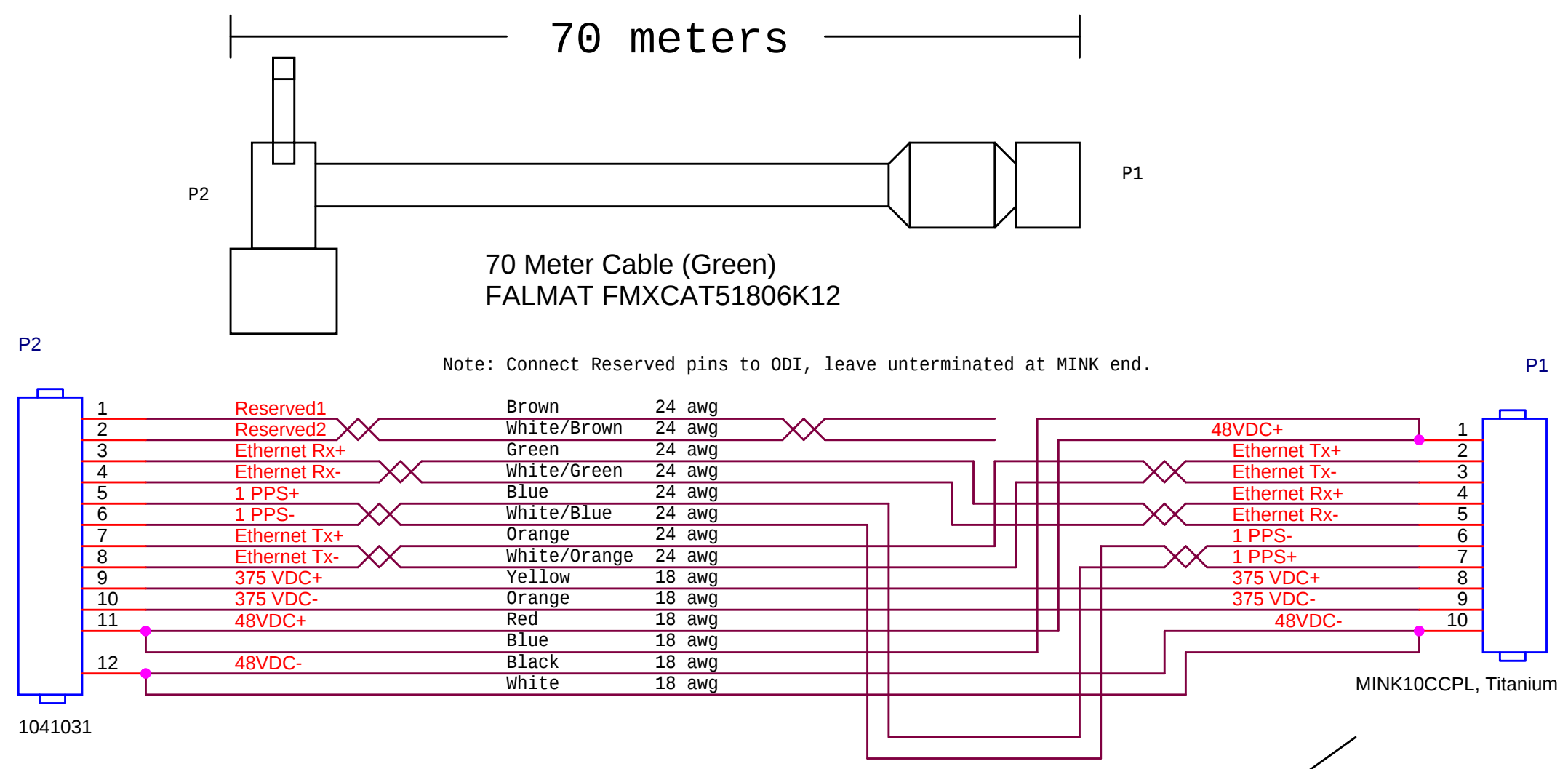




		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title CAB7-2 Main Ball to ISUS Whip		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB7.2	Project File DWSM4km	Rev 1.0
Designer <Designer>		Date: Wednesday, March 16, 2011	Sheet 1 of 1		

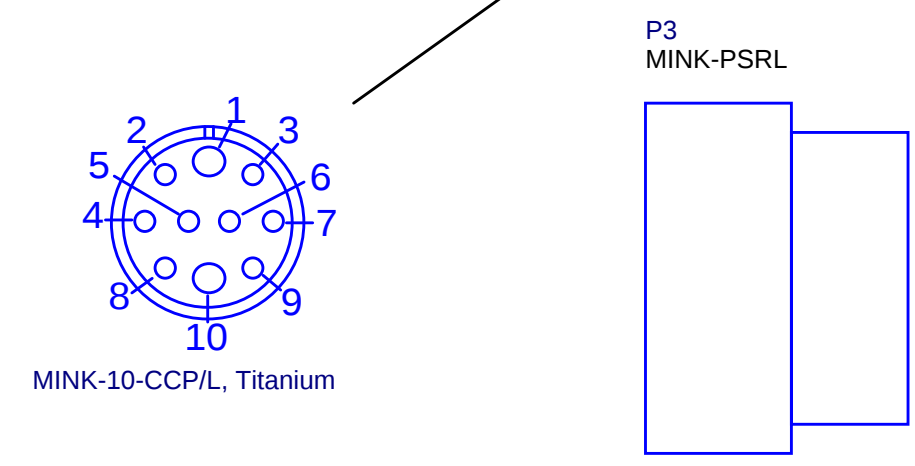


Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title CAB7-3 Main Ball to ISUS Whip				Project ESP	
Engineer Stensen		Size A	Document Number <Doc>	Part Number CAB7.3	Project File DWSM4km
Designer <Designer>		Date: Wednesday, March 16, 2011		Rev 0.0	
Sheet			1	of	1



MARS ODI connector

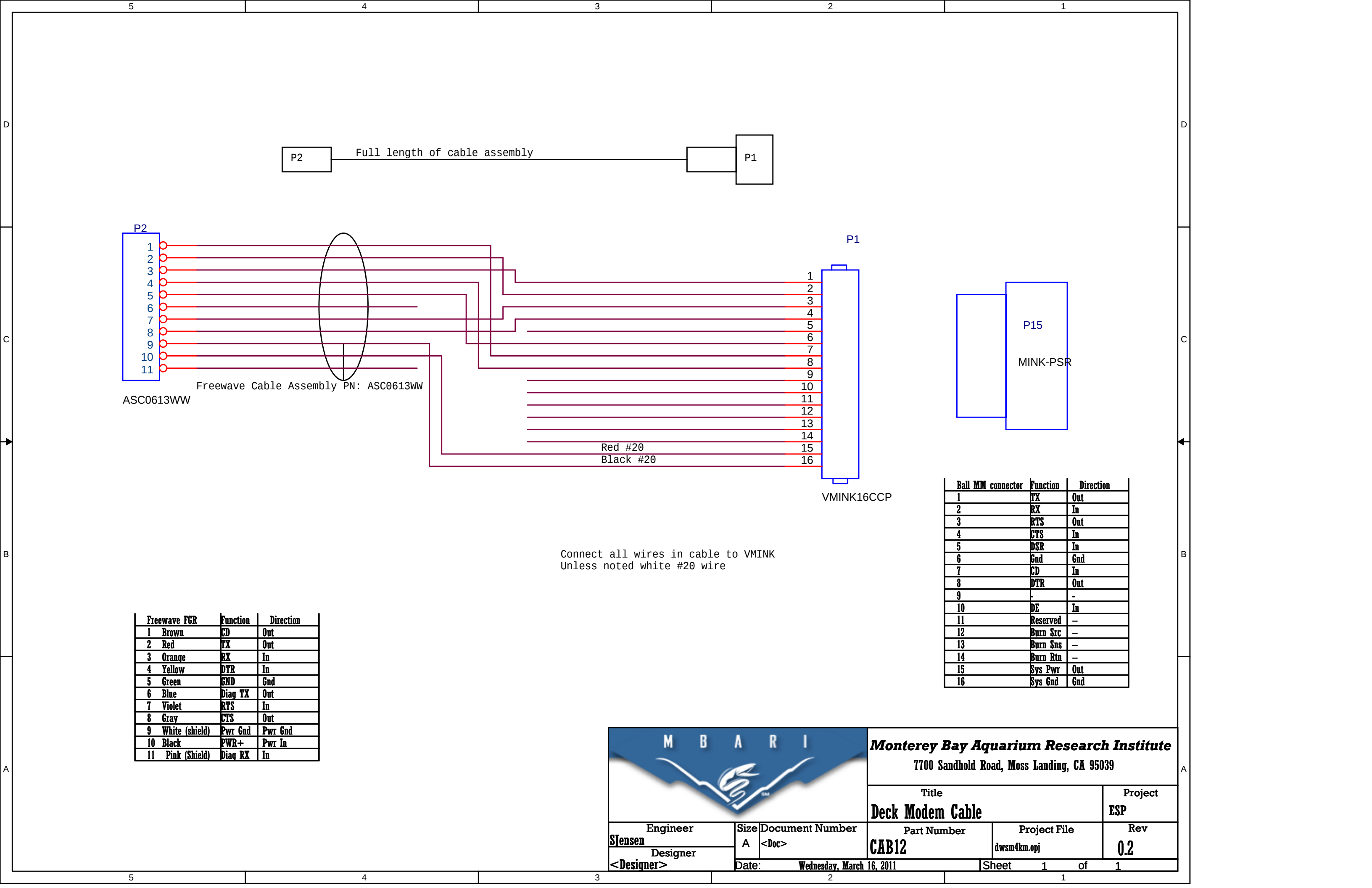
Pin No.	Description
1	Reserved
2	Reserved
3	RX+
4	RX-
5	1 PPS+
6	1 PPS-
7	TX+
8	TX-
9	375 VDC+
10	375 VDC-
11	48 VDC+
12	48 VDC-





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Engineer Stensen		Size A	Document Number 10020316	Title DWSM MARS Platform Interface		Project ESP	
Designer <Designer>				Part Number CAB11		Project File DWSM4km	
Date: Wednesday, March 16, 2011				Rev 0.1		Sheet 1 of 1	



Freewave FGR	Function	Direction
1 Brown	CD	Out
2 Red	TX	Out
3 Orange	RX	In
4 Yellow	DTR	In
5 Green	END	Gnd
6 Blue	Diag TX	Out
7 Violet	RTS	In
8 Gray	CTS	Out
9 White (shield)	Pwr Gnd	Pwr Gnd
10 Black	PWR+	Pwr In
11 Pink (Shield)	Diag RX	In

Ball MM connector	Function	Direction
1	TX	Out
2	RX	In
3	RTS	Out
4	CTS	In
5	DSR	In
6	End	Gnd
7	CD	In
8	DTR	Out
9	-	-
10	DE	In
11	Reserved	--
12	Burn Src	--
13	Burn Sns	--
14	Burn Rtn	--
15	Sys Pwr	Out
16	Sys Gnd	Gnd

M
B
A
R
I

Engineer
Stensen

Designer
<Designer>

Size
A

Date:
Wednesday, March 16, 2011

Document Number
<Doc>

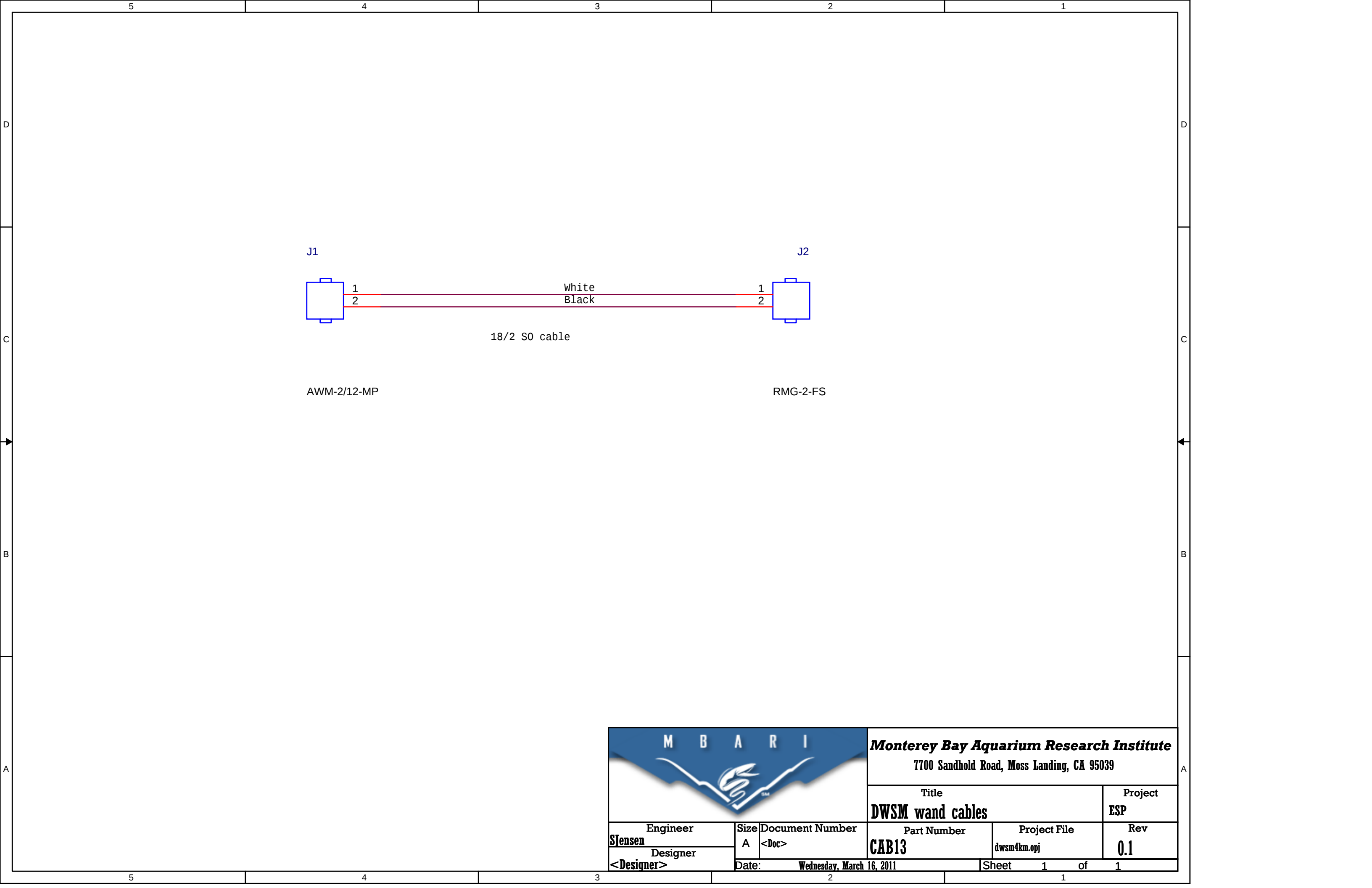
Part Number
CAB12

Project File
dwsm4km.opj

Project
ESP

Rev
0.2

Sheet 1 of 1





Monterey Bay Aquarium Research Institute
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Title

DWSM wand cables

Project

ESP

Engineer

Slensen

Designer

<Designer>

Size

A

Document Number

<Doc>

Part Number

CAB13

Project File

dwsm4km.opj

Rev

0.1

Date:

Wednesday, March 16, 2011

Sheet

1

of

1

These still need to be defined by Girguis lab

Function	Pin	Direction
24VDC Turbo and Misc	1	In
RS-232 Common	2	Common
Unused	3	-
RGA RS-232 Pin 2	4	?
RGA -RS-232 Pin 3	5	?
Sea Water Pump ctrl	6	Out
Turbo RS-232 Pin 2	7	?
Turbo RS-232 pin 3	8	?
24VDC RGA and Rough	9	In
24VDC Common	10	Common

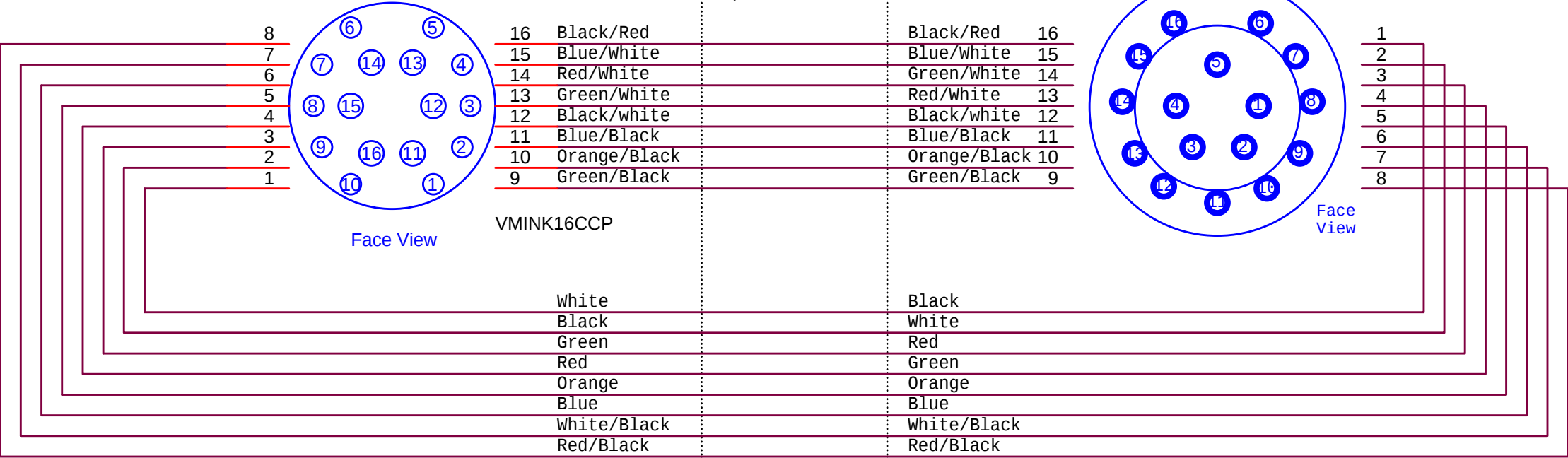
Seacon 10' whip of 18/16 SOJ cable

Subconn 2' whip of 20 awg 16 conductor SOJ cable

P16
MCIL16M

Splice and mold

J3



Function	Pin	Direction
RS-232 Common	1	Common
TXD Turbo	2	Out
RXD Turbo	3	In
Unused	4	-
Unused	5	-
Seawater Pump ctrl	6	In
Unused	7	-
RXD MS	8	In
TXD MS	9	Out
RS-232 Common	10	Common
24VDC Common	11	Common
24VDC MS	12	Out
Unused	13	-
Unused	14	-
24VDC Turbo	15	Out
24VDC Common	16	Common

From ISMS Power rev 0.0			
Description	Pin	Direction	
TP GND	1	GND	
TP RX	2	From TP	
TP TX	3	To TP	
RGA GND	4	Gnd	
RGA RX	5	From RGA	
RGA TX	6	To RGA	
RGA DTR	7	To RGA	
RGA DSR	8	From RGA	
RGA RTS	9	To RGA	
RGA CTS	10	From RGA	
TP 24V	11	To TP	
TP 24V	12	To TP	
TP 24V com	13	Gnd	
TP 24V com	14	Gnd	
RGA 24V	15	To RGA	
RGA 24V com	16	GND	

As determined by Girguis Deck Box

Function	Pin	Direction
Turbo Pin 5 (DB9)	1	Common
Turbo Pin 3 (DB9)	2	Tx out
Turbo Pin 2 (DB9)	3	Rx in
RGA Pin 5 (DB9)	4	Common
RGA Pin 3 (DB9)	5	Tx out
RGA Pin 2 (DB9)	6	Rx in
Turbo Pump +24	7	PWR
Turbo Pump Gnd	8	PWR
RGA +24	9	PWR
RGA Gnd	10	PWR
Solenoid +24	11	PWR
Solenoid Gnd	12	PWR



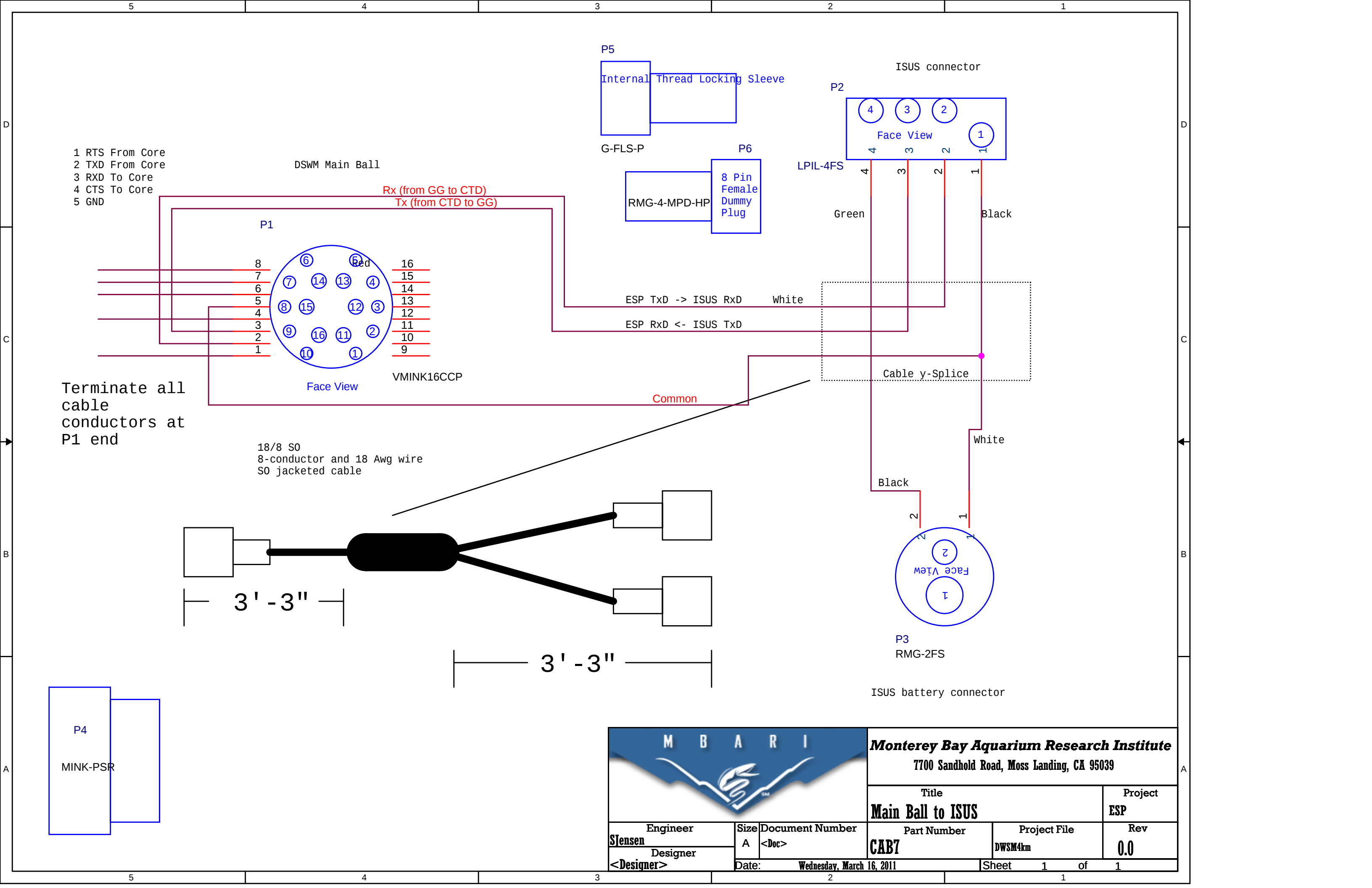
Monterey Bay Aquarium Research Institute
7700 Sandhold Road, Moss Landing, CA 95039

Title
CAB 14 Sphere to ISMS

Project
ESP

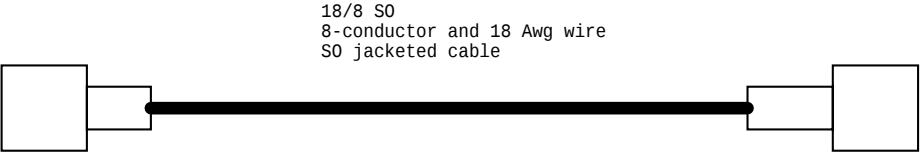
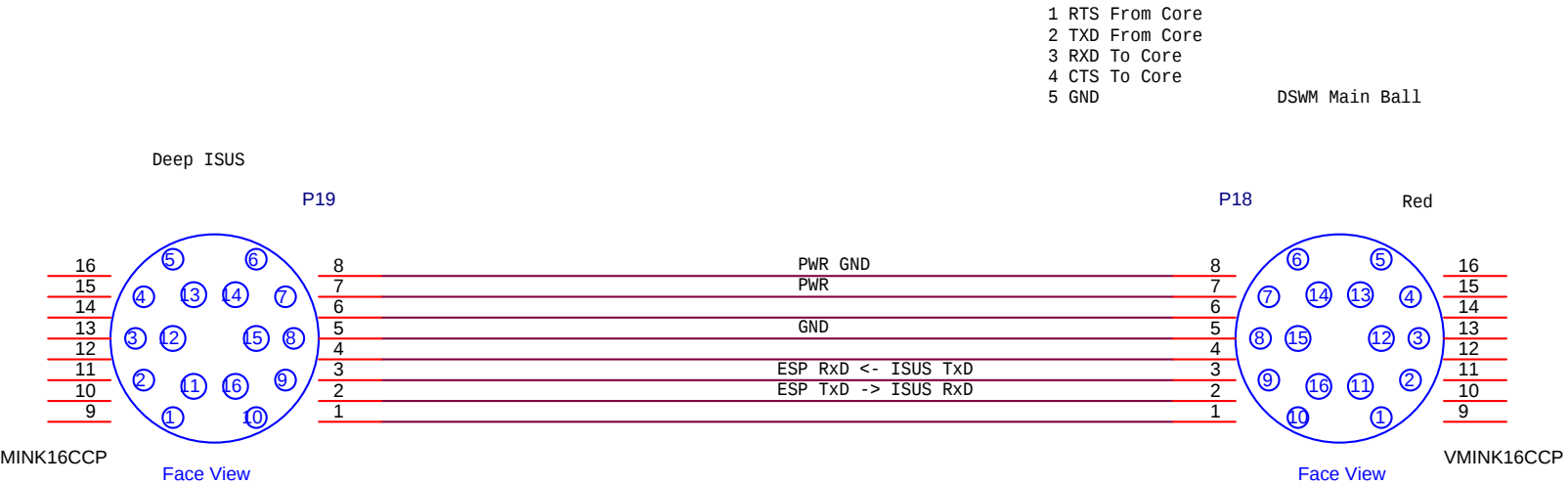
Engineer S Jensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj	Rev 0.2
Designer <Designer>	Date: Wednesday, March 16, 2011				
Sheet			1	of	1

Rev 0.1 color error in 0.0 VMINK16 Black and white swapped



Color code inside of ISUS

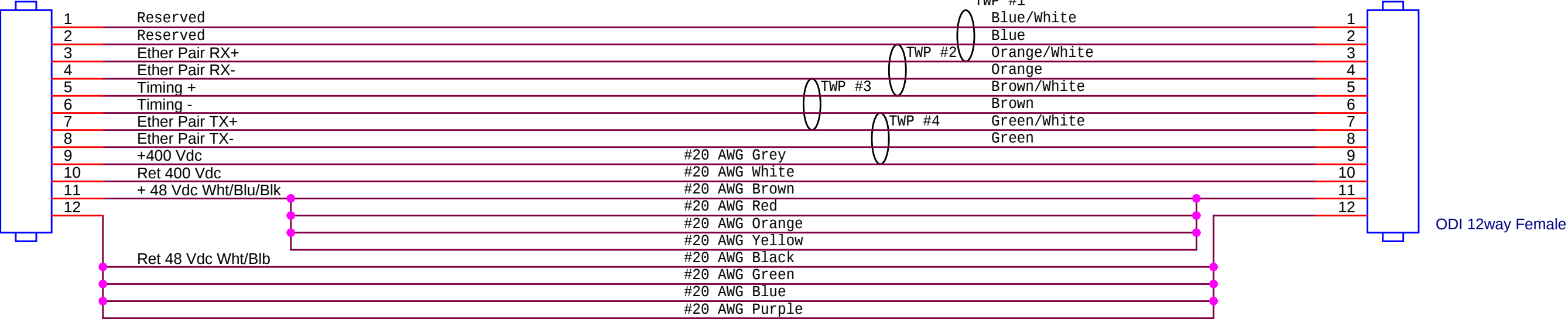
Pin	Color	Function
8	Black	Pwr. Ground
7	Orange	Pwr
5	Brn	Comm. Grnd
3	W/Grn	ISUS TxD
2	W/Bl	ISUS RxD



			Monterey Bay Aquarium Research Institute		
			7700 Sandhold Road, Moss Landing, CA 95039		
			Title DWSM ISUS to Main Ball		Project ESP
Engineer SJensen	Size B	Document Number <Doc>	Part Number CAB15	Project File dwsm4km.opj	Rev 0.1
Designer <Designer>	Date: Friday, May 13, 2011			Sheet 1 of 1	

Cable Type Falmat FM022208-11-M02
AWG 14 Conductor equivalent is 4 x #20AWG
Waterblocking (Cable Max?) present
Twists on twp should be maintained to solder cups as best as possible.
Jacket:Green Polyurethane
Dia: 0.61"

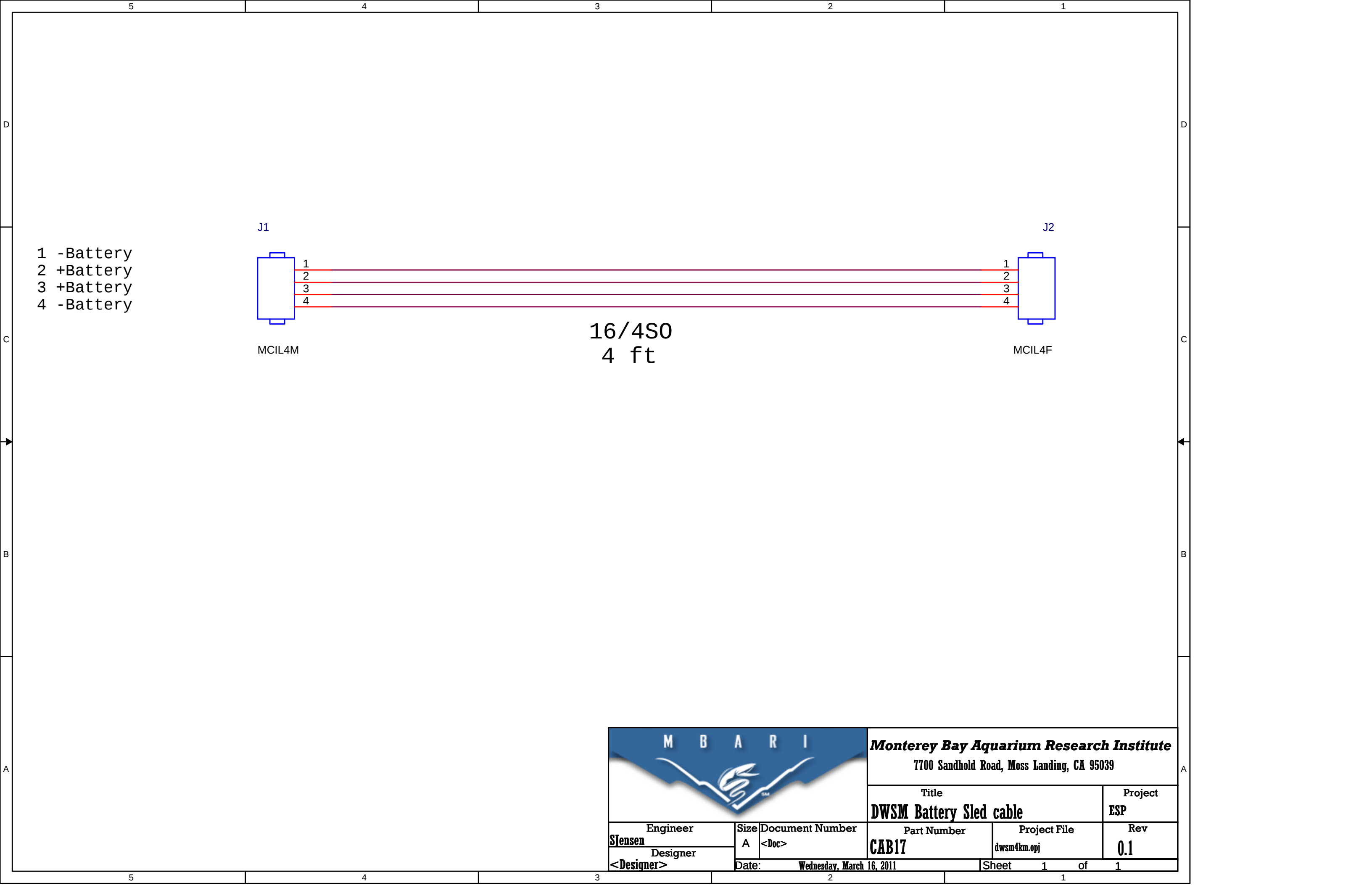
ODI 12way Female



ODI 12way Female

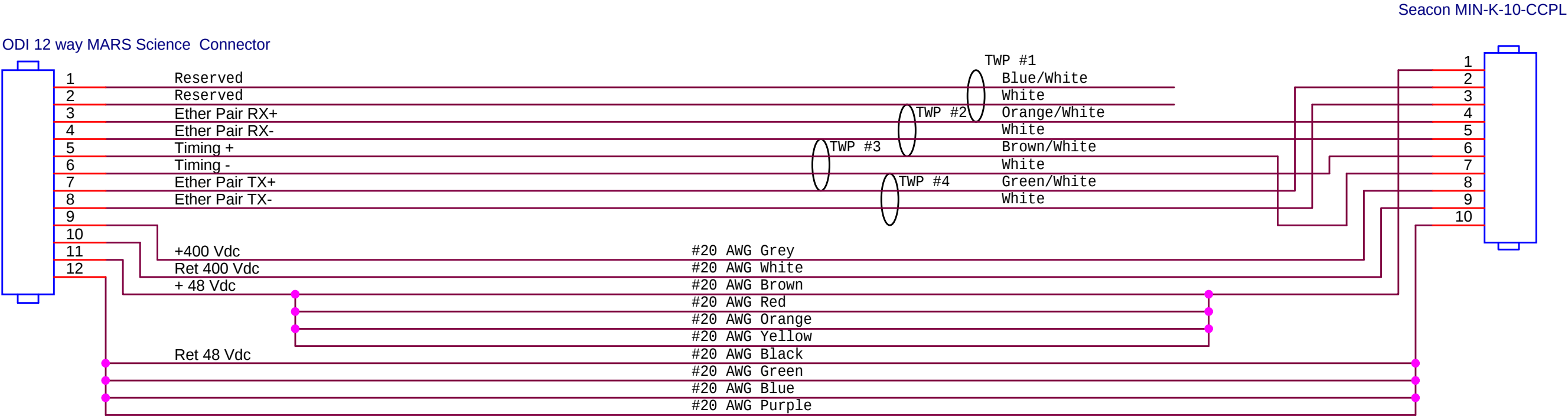
If 4x#20AWG wires do not fit in the solder
cups any pig tail used should be 14AWG

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title <Title>		Project <Project>	
Engineer <Engineer>	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev <Rev>
Designer <Designer>		Date: Wednesday, March 16, 2011			
			Sheet 1 of 1		



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title DWSM Battery Sled cable				Project ESP	
Engineer Slensen	Size A	Document Number <Doc>	Part Number CAB17	Project File dwsml4km.opj	Rev 0.1
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	

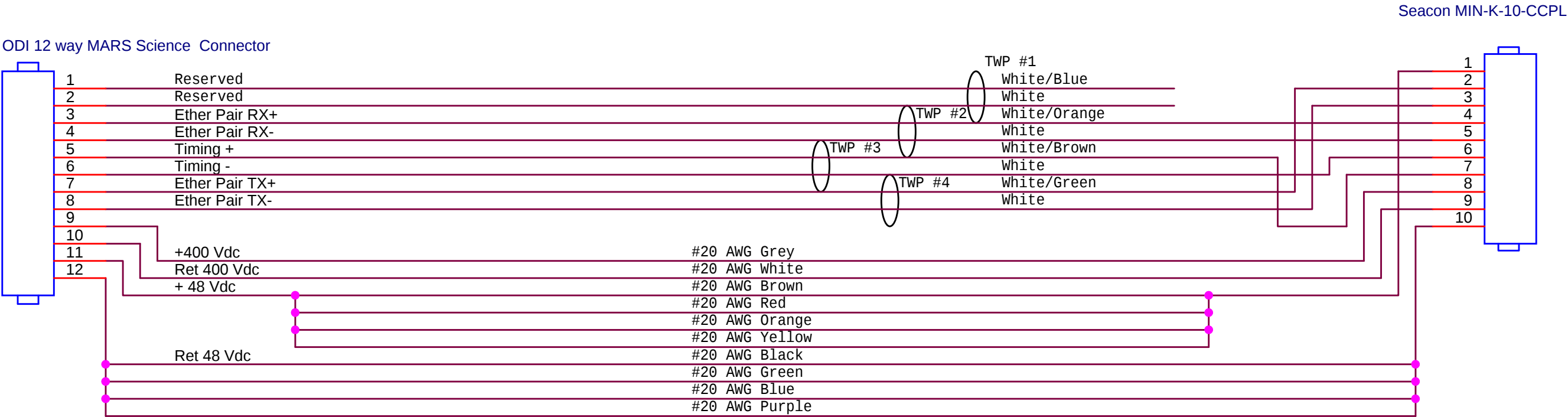
Cable Type Falmat FM022208-11
AWG 14 Conductor equivalent is 4 x #20AWG
Waterblocking (Cable Max?) present
Twists on twp should be maintained to solder cups as best as possible.
Jacket:Green Polyurethane
Dia: 0.61"



If 4x#20AWG wires do not fit in the solder cups any pig tail used should be 14AWG

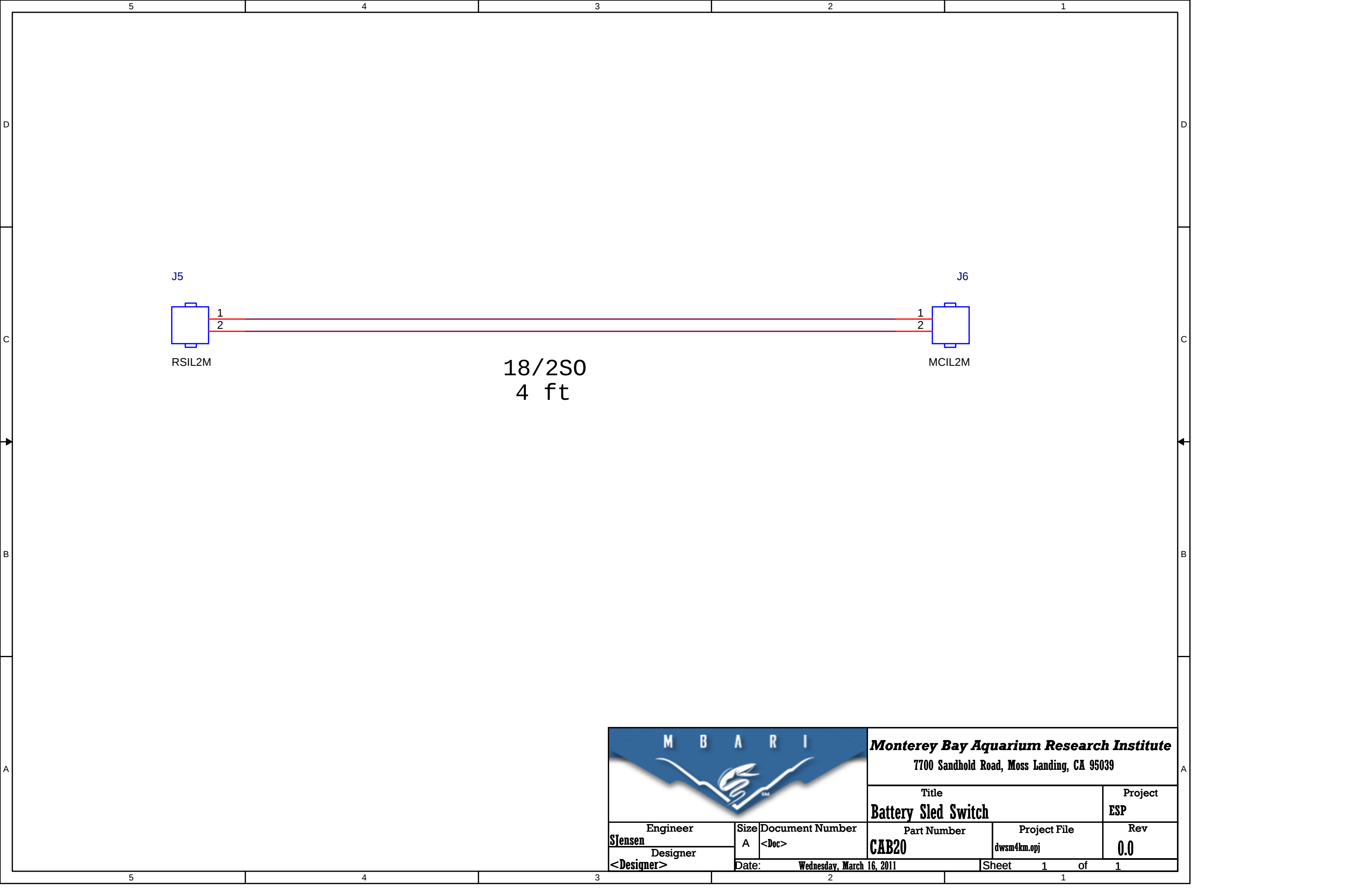
		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title DWSM Battery Sled ODI		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB19	Project File dwsm4km.opj	Rev 0.0
Designer Dawe	Date: Wednesday, March 16, 2011		Sheet 1 of 1		

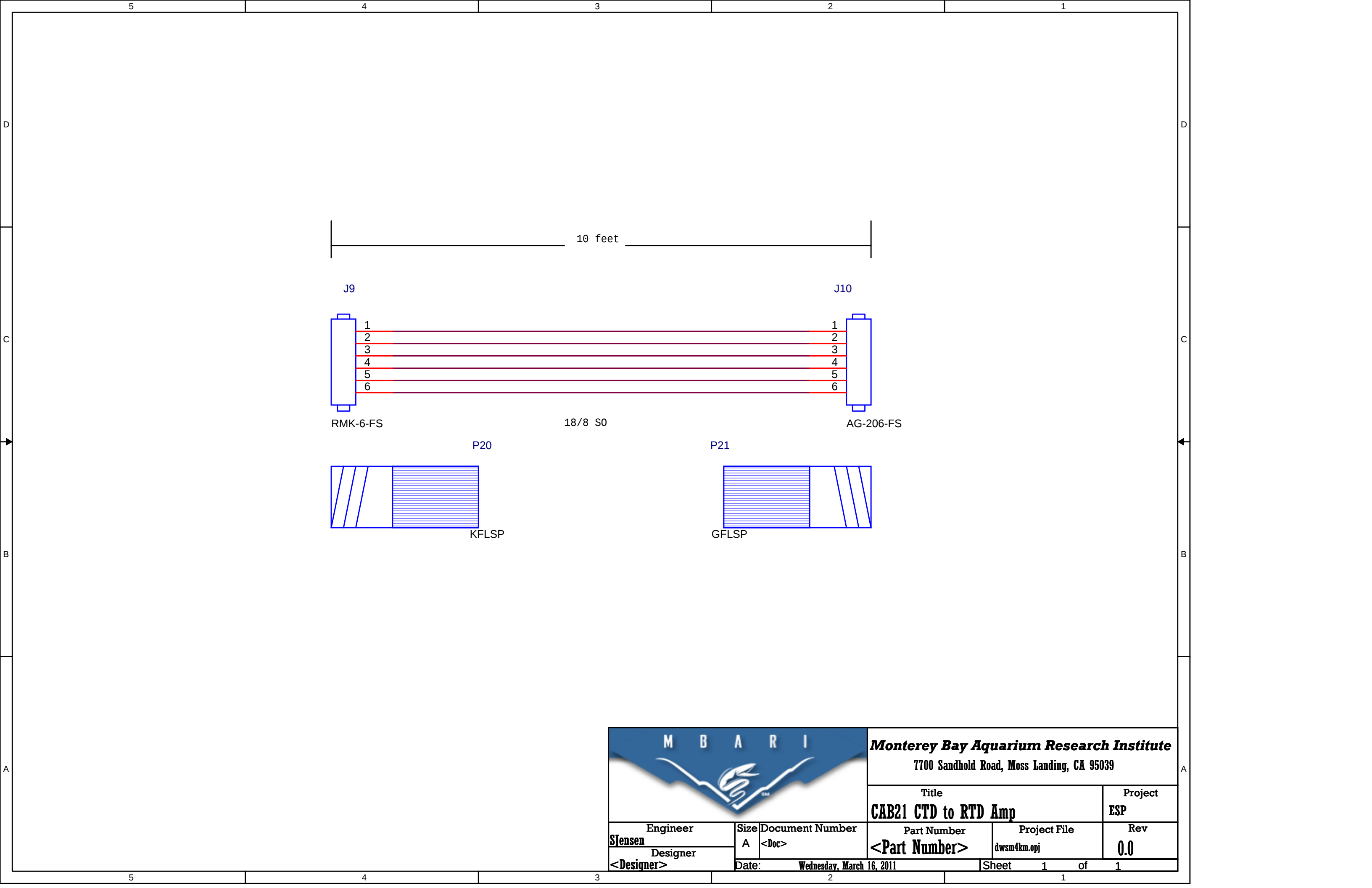
Cable Type Falmat FM022208-11
AWG 14 Conductor equivalent is 4 x #20AWG
Waterblocking (Cable Max?) present
Twists on twp should be maintained to solder cups as best as possible.
Jacket:Green Polyurethane
Dia: 0.61"



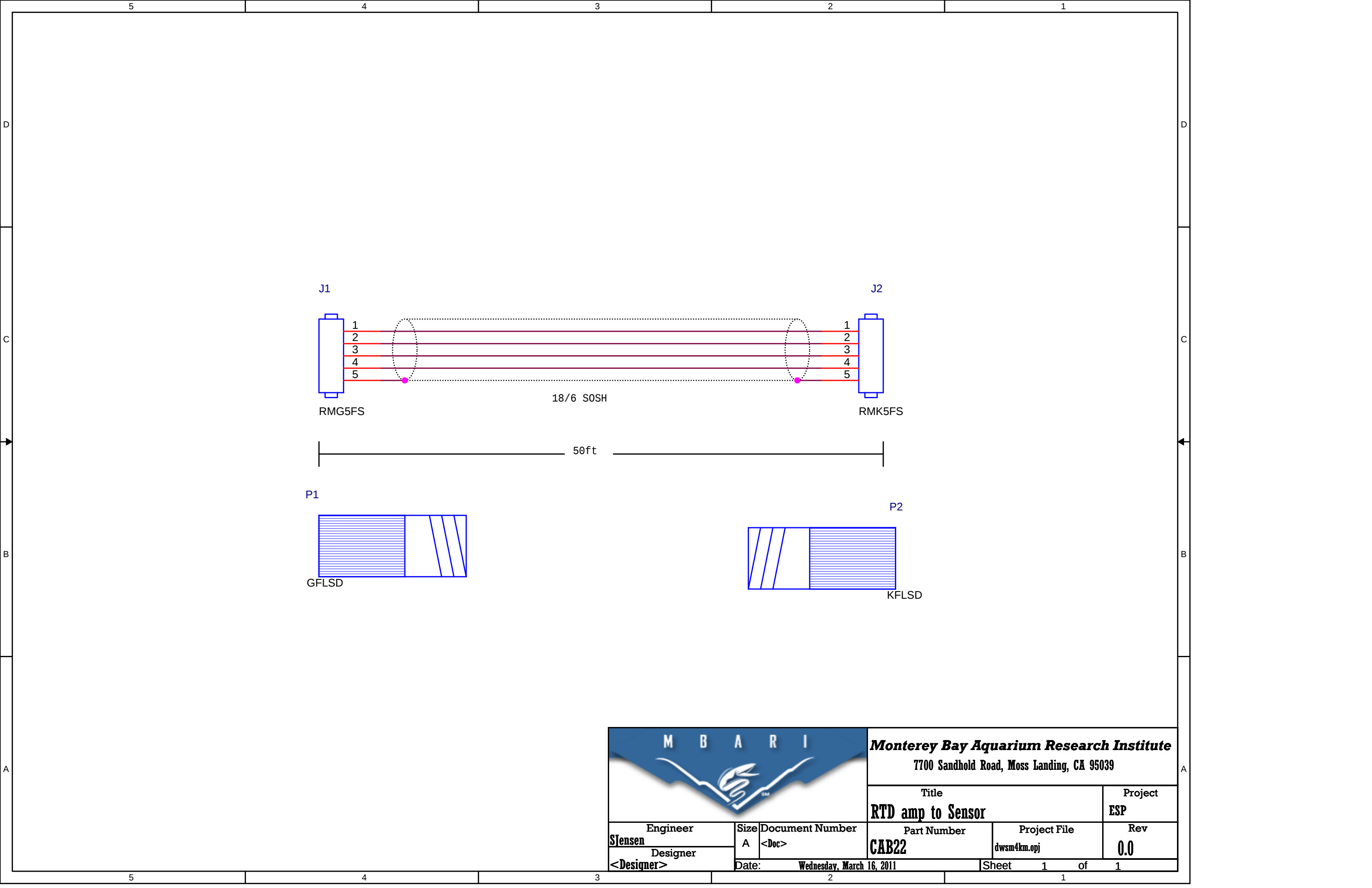
If 4x#20AWG wires do not fit in the solder cups any pig tail used should be 14AWG

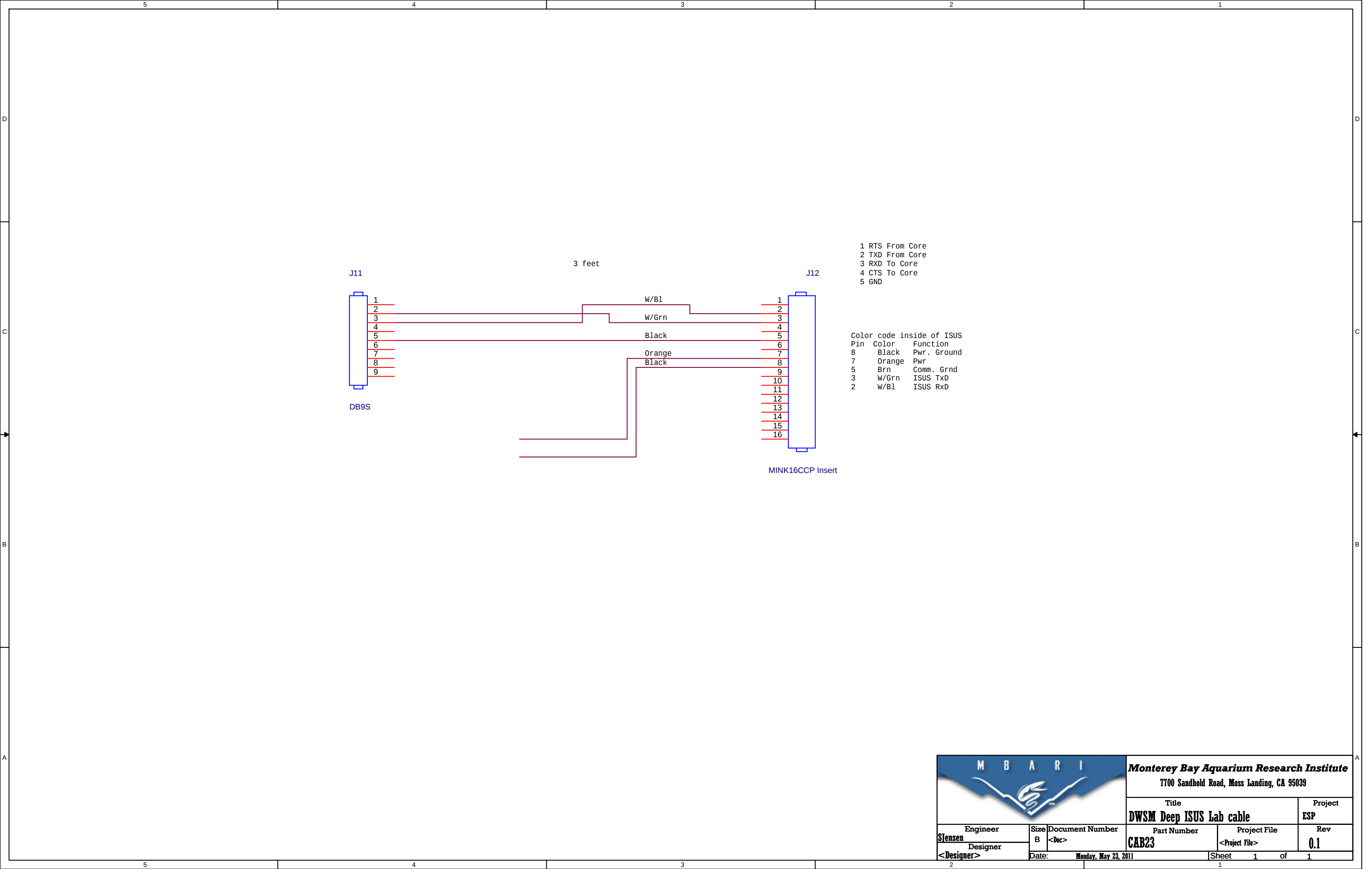
		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title DWSM Platform Interface 10m		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number CAB18	Project File dwsm4km.opj	Rev 0.1
Designer Dawe	Date: Wednesday, March 16, 2011		Sheet 1 of 1		

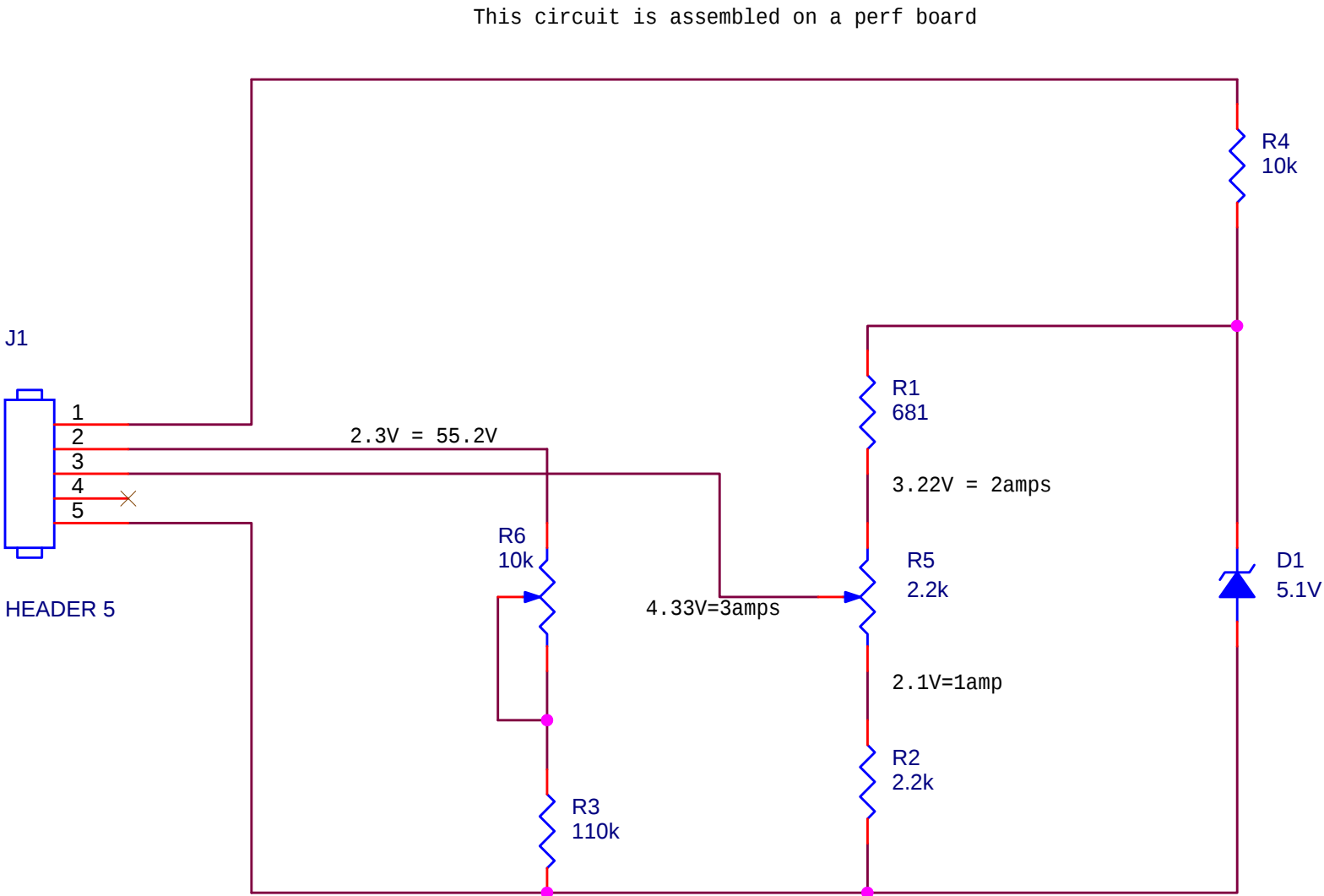




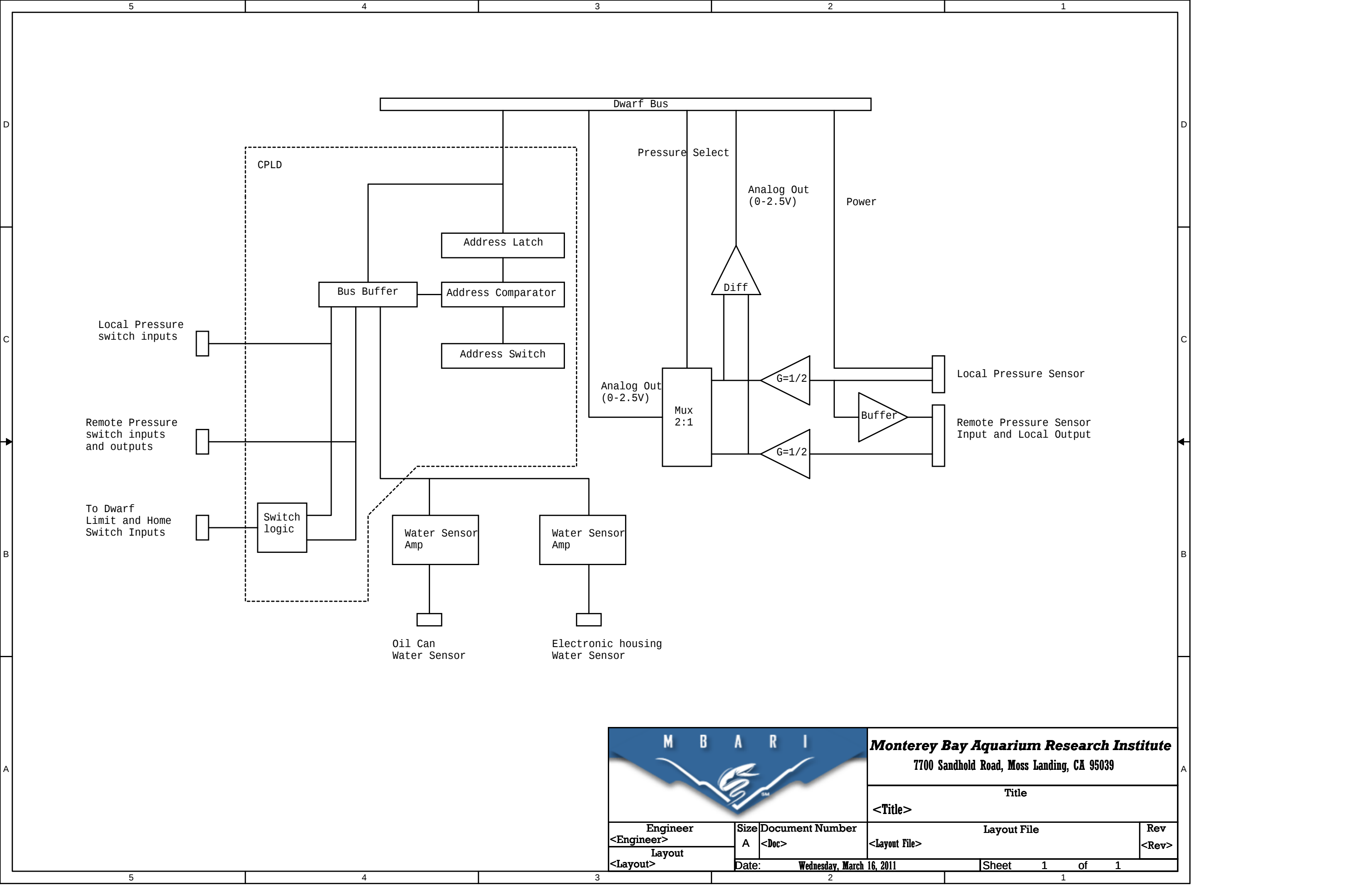
Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title CAB21 CTD to RTD Amp				Project ESP	
Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File dwsn4km.opj	Rev 0.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	



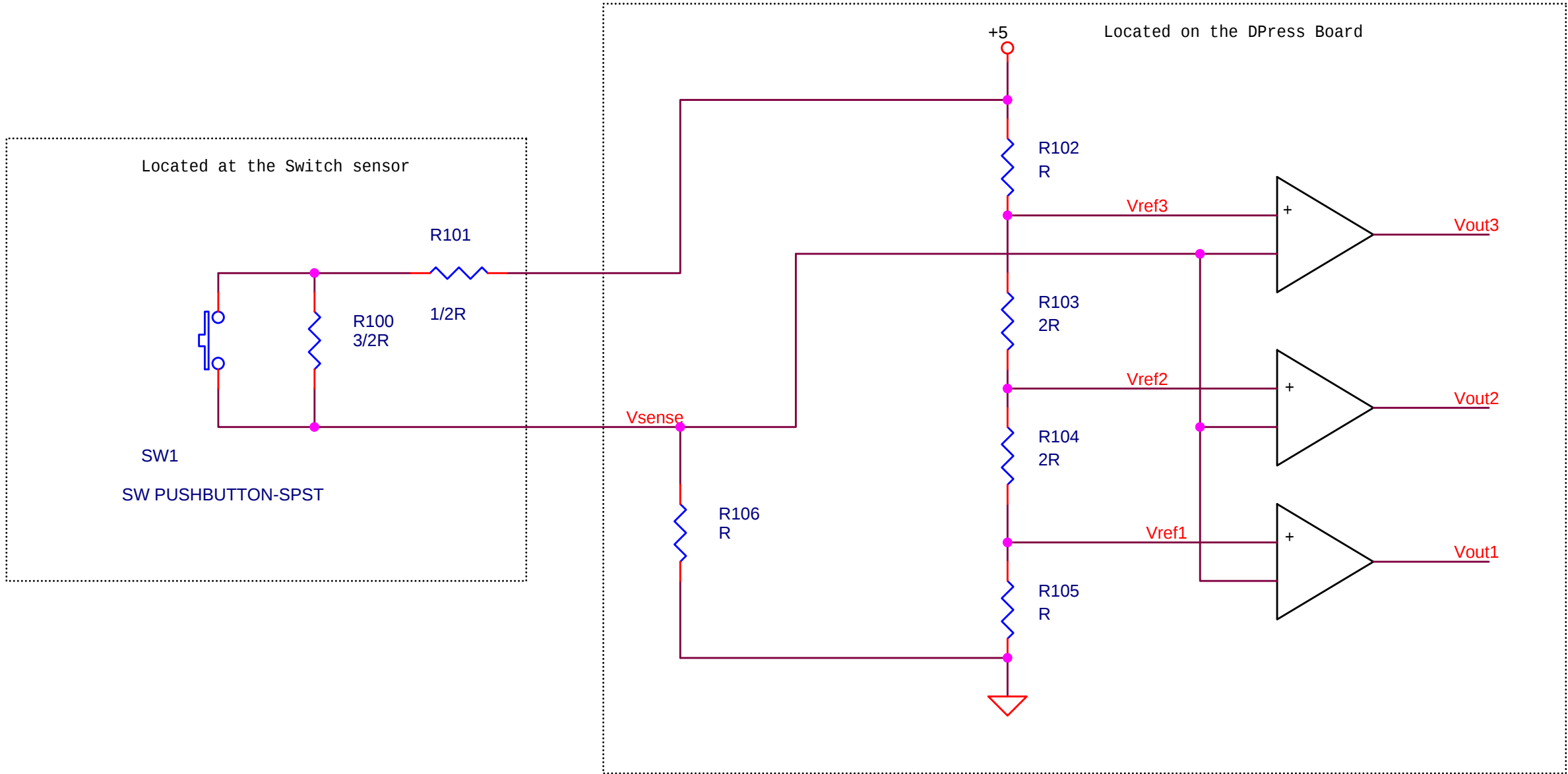




Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title DWSM Charge Controller				Project ESP	
Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev 0.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	

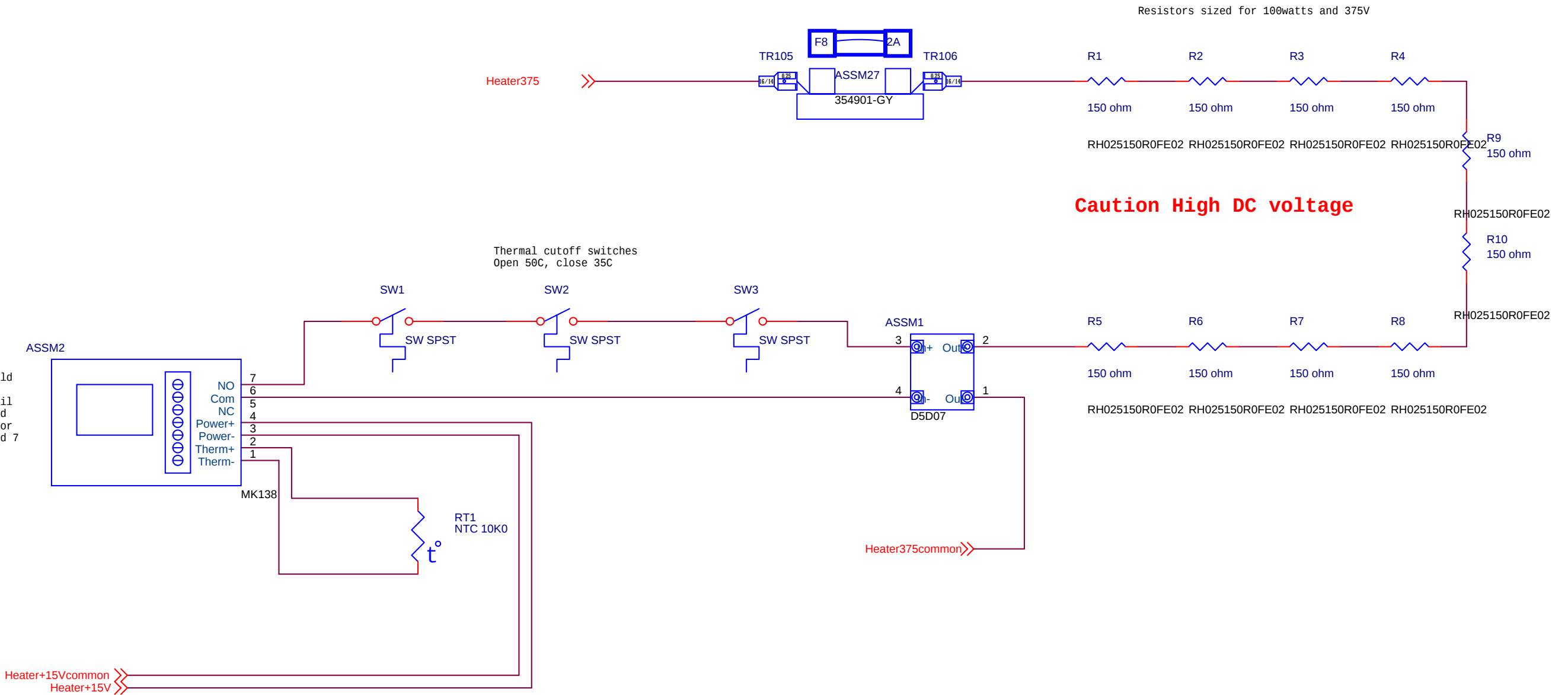


Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
Title <Title>			
Engineer <Engineer>	Size A	Document Number <Doc>	Rev <Rev>
Layout <Layout>	Date: Wednesday, March 16, 2011		
Sheet 1 of 1		Layout File <Layout File>	



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
Title Pressure Switch fault detection			
Engineer <Engineer>	Size A	Document Number <Doc>	Rev <Rev>
Layout <Layout>	Date: Wednesday, March 16, 2011		
Sheet		1 of 1	

MK138 kit should have relay not stuffed and coil voltage applied across connector pins 6 (V-) and 7 (V+)

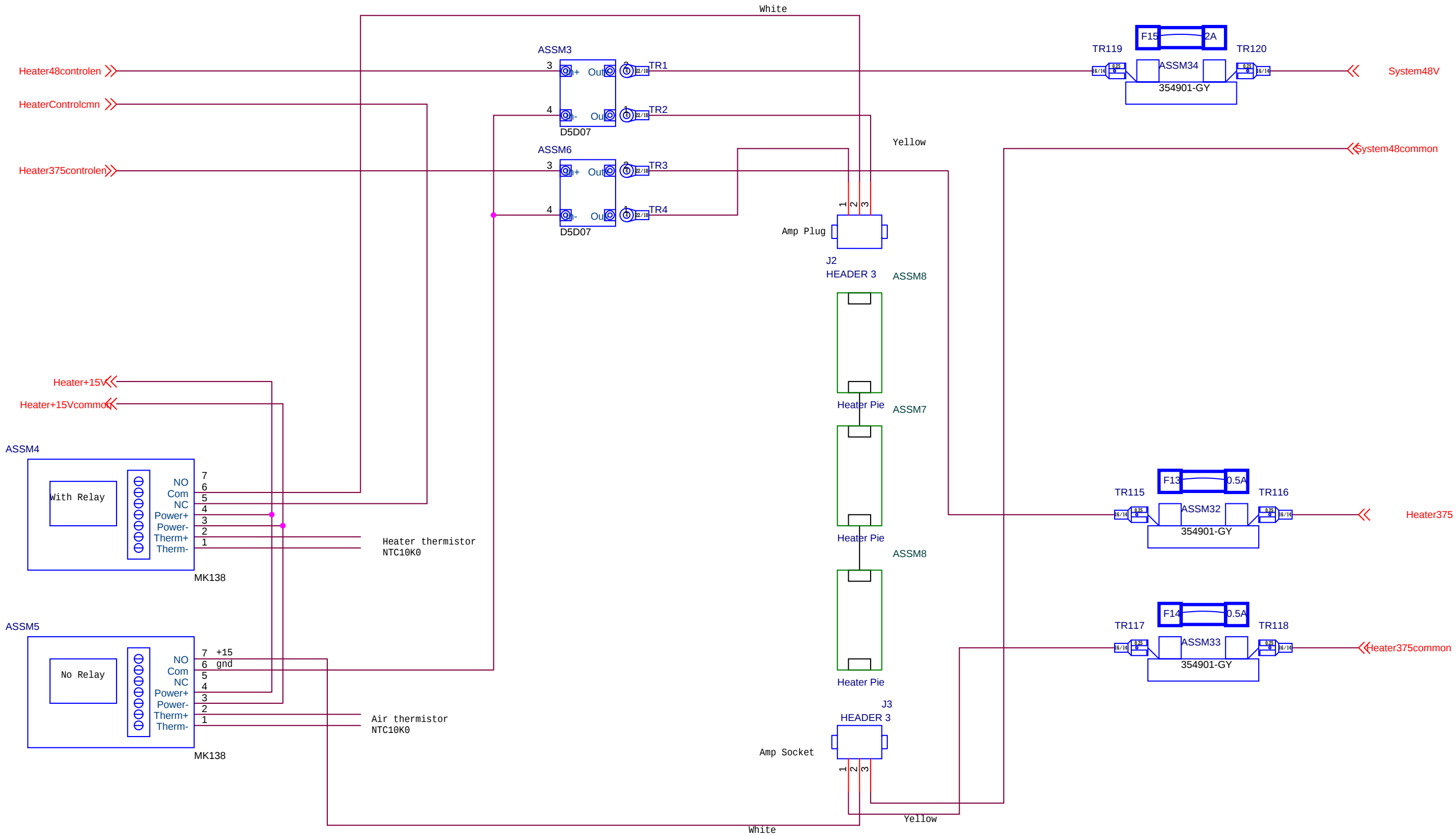


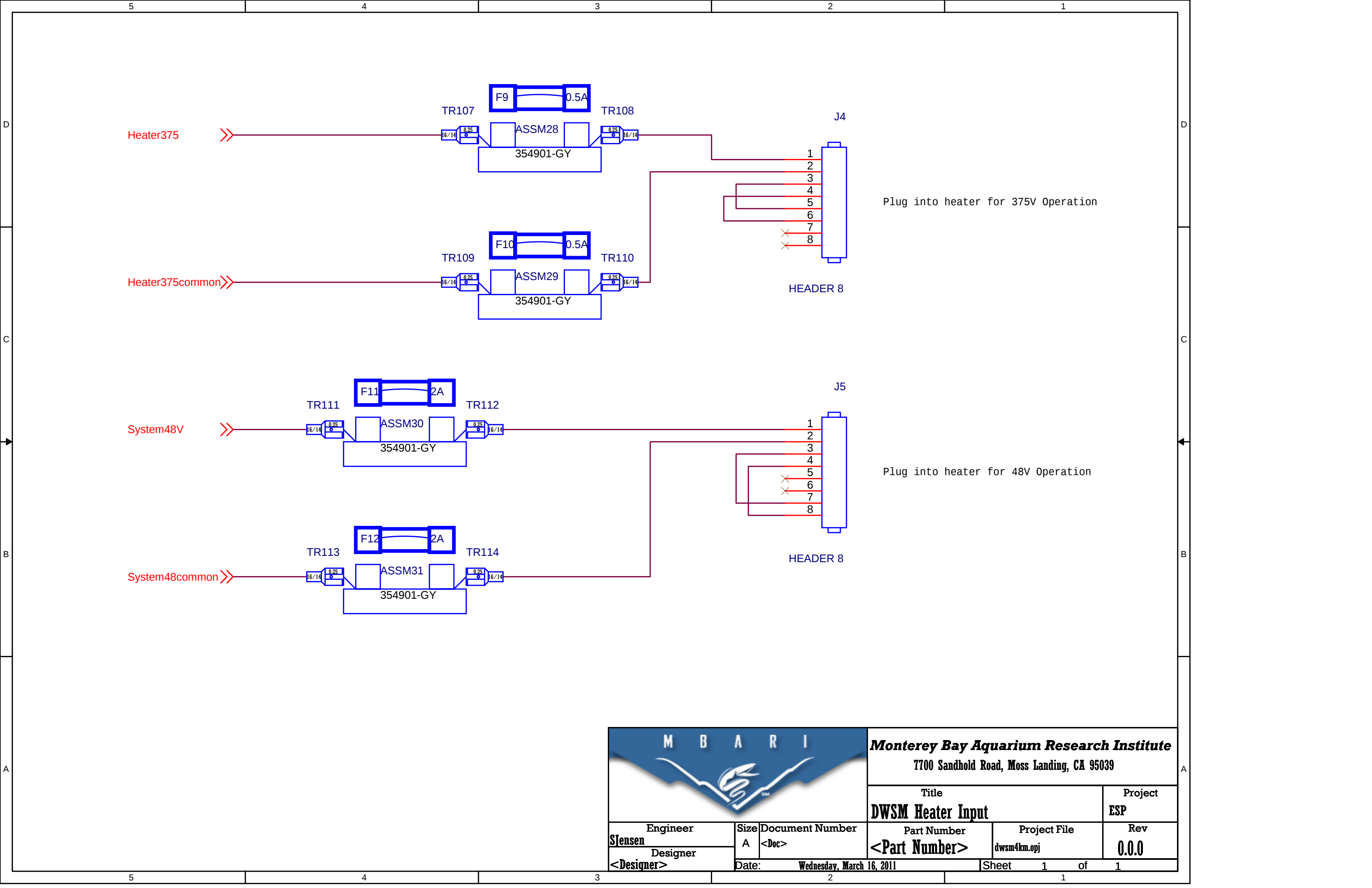
Monterey Bay Aquarium Research Institute
7700 Sandhold Road, Moss Landing, CA 95039

Title <Title>	Project <Project>
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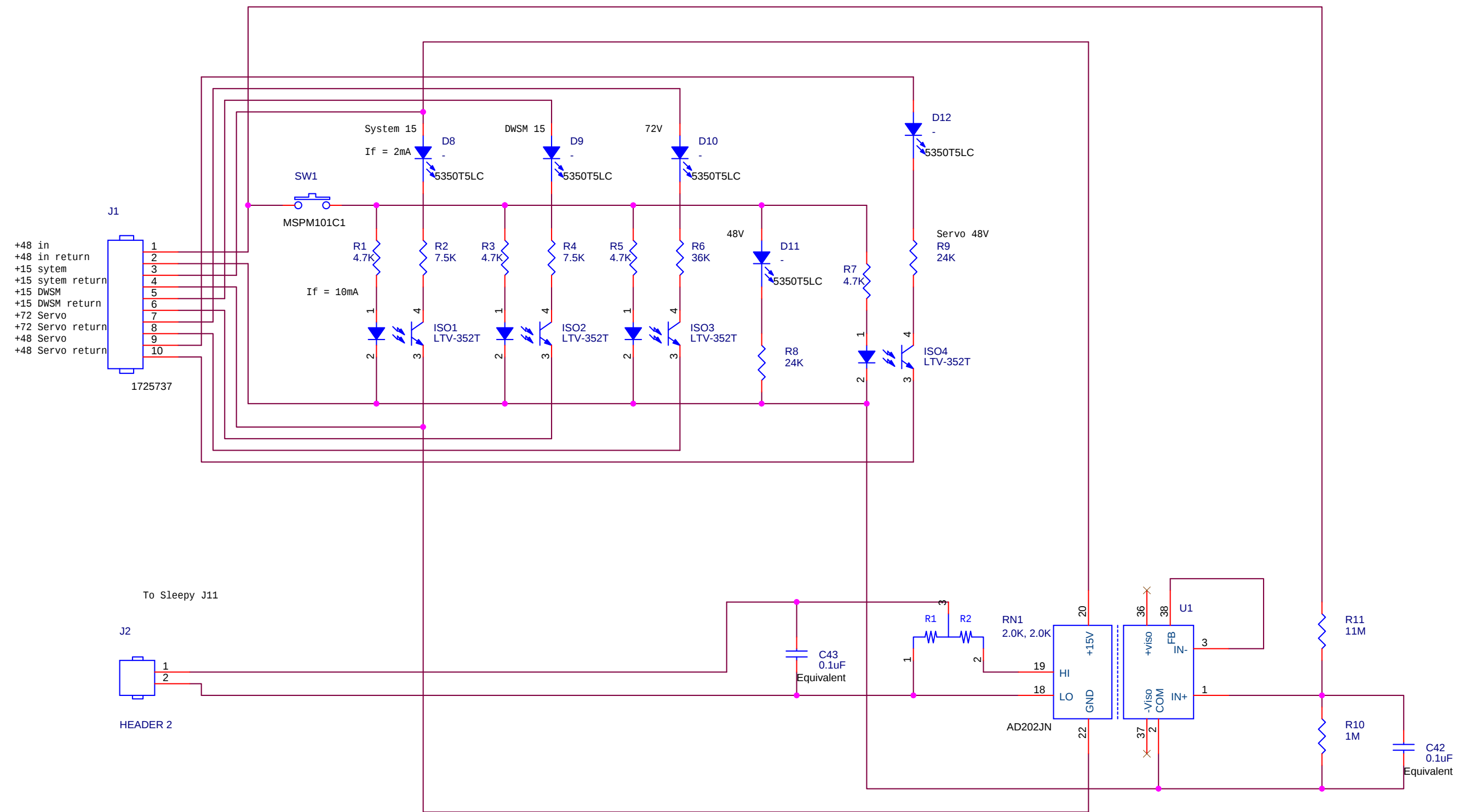
Engineer <Engineer>	Size B	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev <Rev>
Designer <Designer>	Date:	Wednesday, March 16, 2011	Sheet	1 of 1	

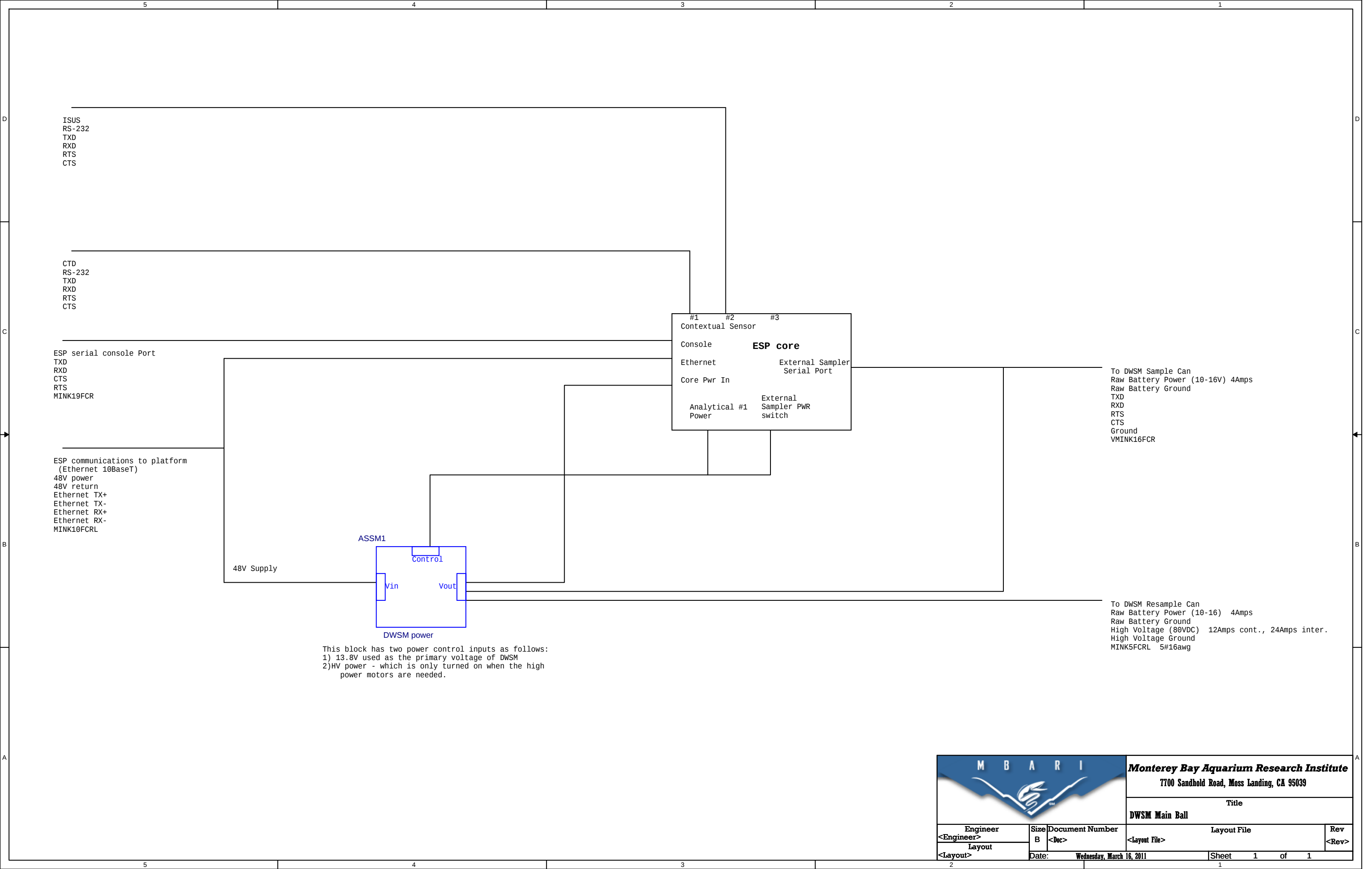
Quad Web Relay
Normally closed





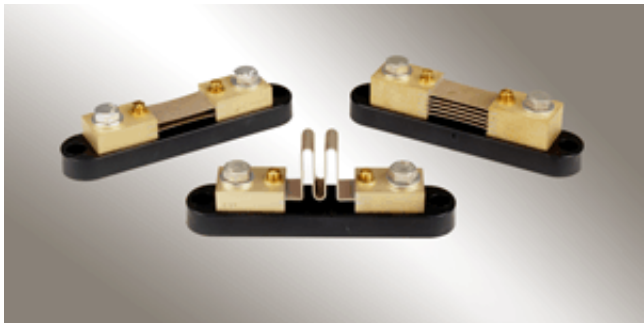
Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title DWSM Heater Input				Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj	Rev 0.0.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	





**** Caution ****
Pinout to match FOCE
input configuration

Pin No.	Description
1	Reserved
2	Reserved
3	RX+
4	RX-
5	1 PPS+
6	1 PPS-
7	TX+
8	TX-
9	375 VDC+
10	375 VDC-
11	48 VDC+
12	48 VDC-



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Engineer
SJensen
Designer
<Designer>

Size
B
Document Number
<Doc>
Date: Wednesday, March 16, 2011

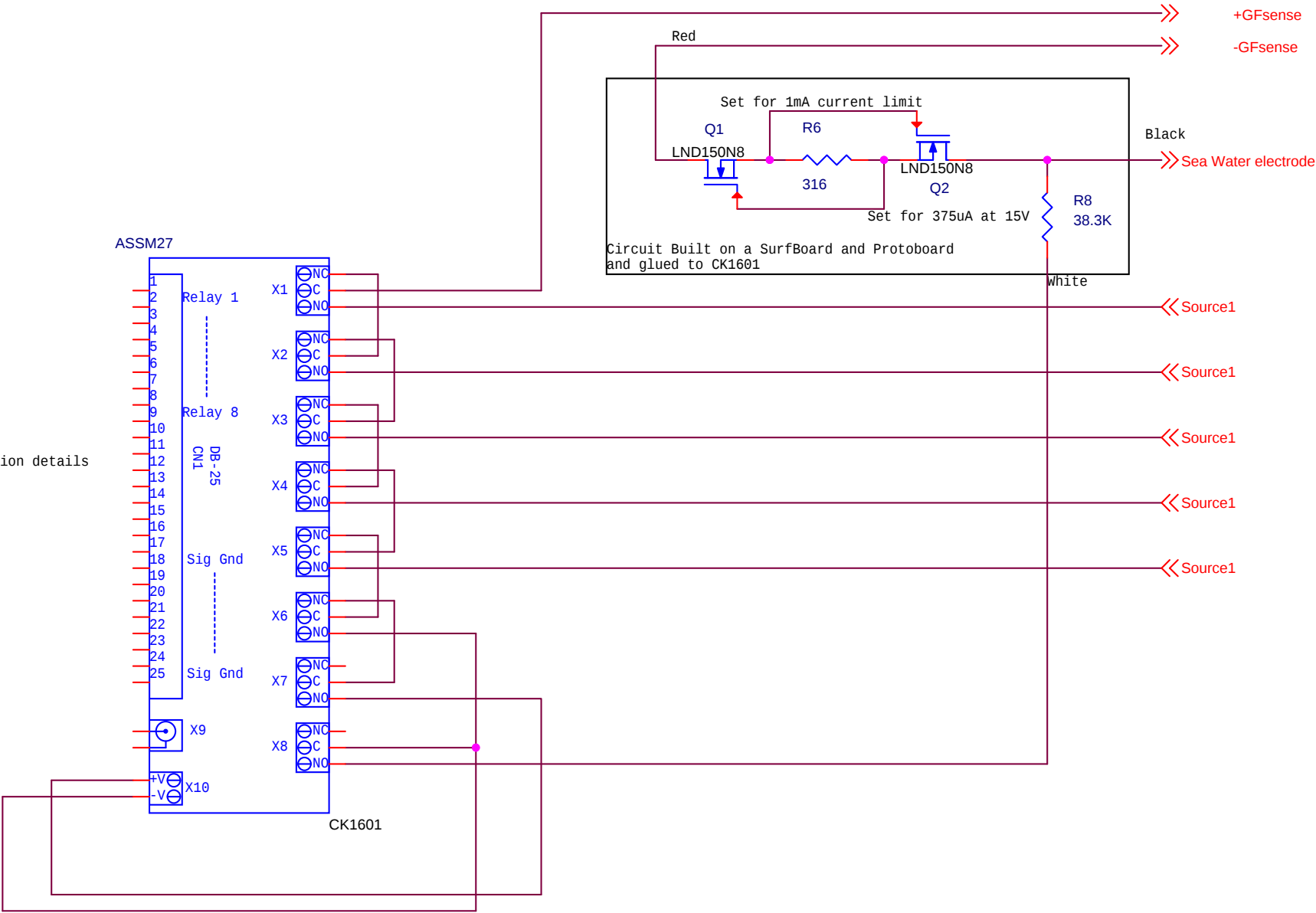
Part Number
<Part Number>

Project File
DWSM4km

Project
ESP
Rev
0.1

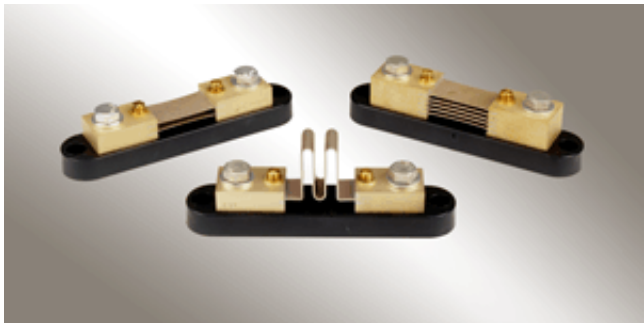
Sheet 1 of 5

See Acquisition Page for connection details



**** Caution ****
Pinout to match MARS
input configuration

Pin No.	Description
1	Reserved
2	Reserved
3	RX+
4	RX-
5	1 PPS+
6	1 PPS-
7	TX+
8	TX-
9	375 VDC+
10	375 VDC-
11	48 VDC+
12	48 VDC-



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Engineer
SJensen
Designer
<Designer>

Size
B

Document Number
<Doc>

Date: Wednesday, March 16, 2011

Title
DWSM Power Platform Interface

Part Number
<Part Number>

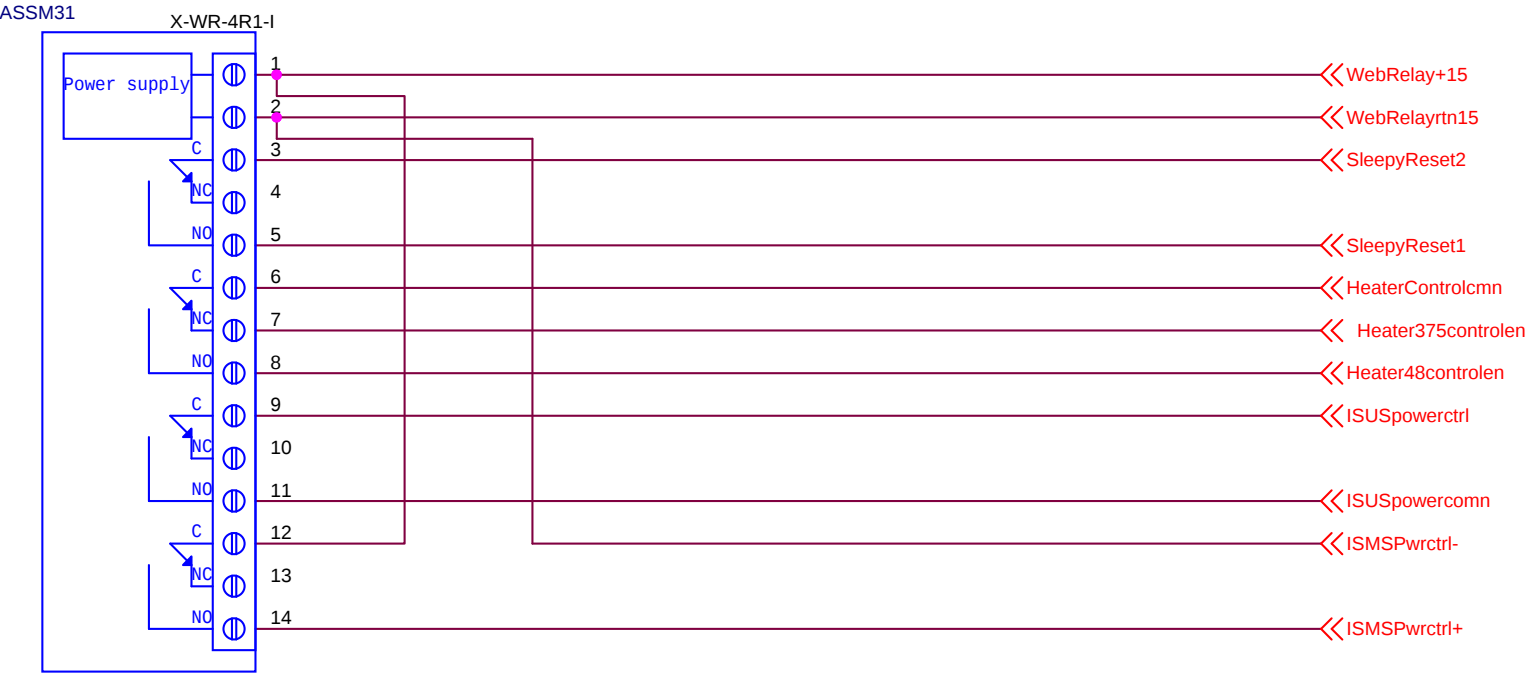
Project File
DWSM4km

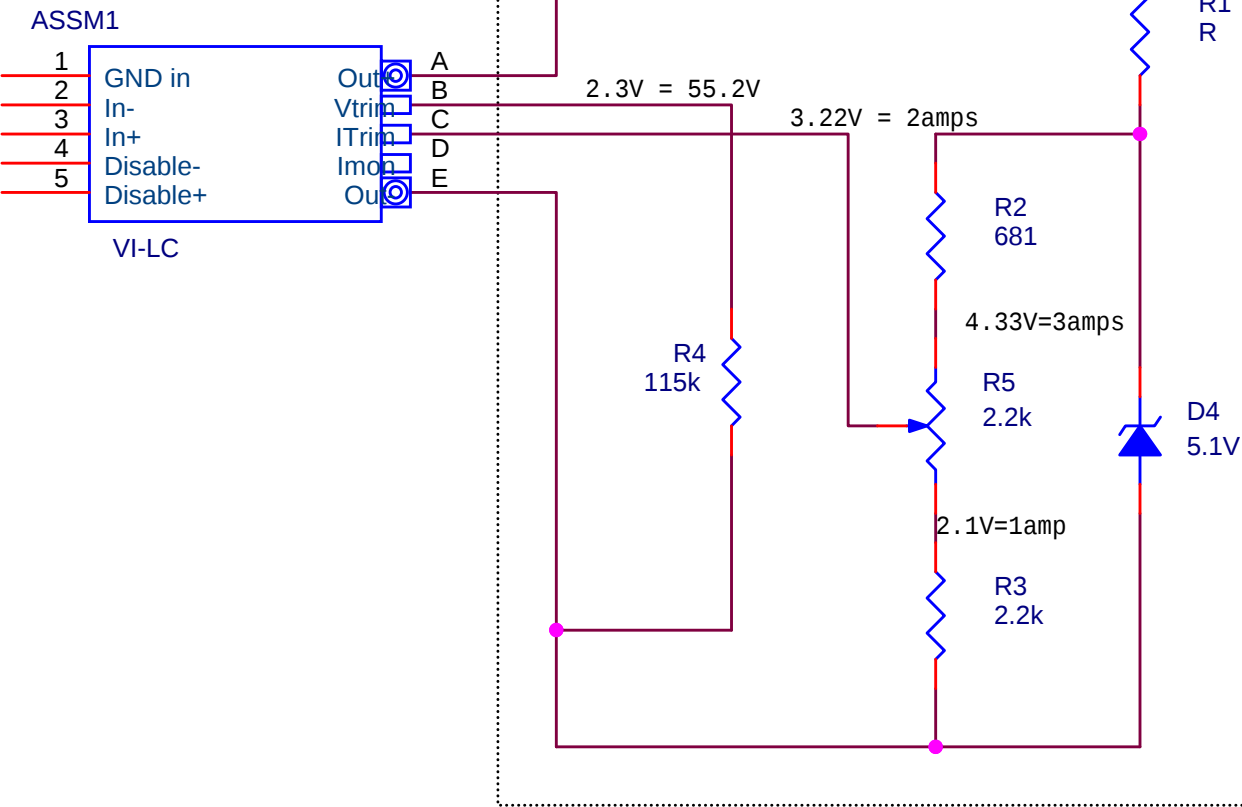
Project
ESP

Rev
0.1

Sheet 1 of 5

5	4	3	2	1																					
D					D																				
C					C																				
B					B																				
A	<table><tr><td colspan="2"></td><td colspan="3">Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039</td></tr><tr><td colspan="2"></td><td colspan="2">Title <Title></td><td>Project <Project></td></tr><tr><td>Engineer <Engineer></td><td>Size A</td><td>Document Number <Doc></td><td>Part Number <Part Number></td><td>Project File <Project File></td></tr><tr><td>Designer <Designer></td><td colspan="2">Date: Wednesday, March 16, 2011</td><td>Sheet 1</td><td>of 1</td></tr></table>						Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					Title <Title>		Project <Project>	Engineer <Engineer>	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Designer <Designer>	Date: Wednesday, March 16, 2011		Sheet 1	of 1	A
		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039																							
		Title <Title>		Project <Project>																					
Engineer <Engineer>	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>																					
Designer <Designer>	Date: Wednesday, March 16, 2011		Sheet 1	of 1																					
5	4	3	2	1																					





Monterey Bay Aquarium Research Institute
7700 Sandhold Road, Moss Landing, CA 95039

Title
DWSM Power BatMod circuit

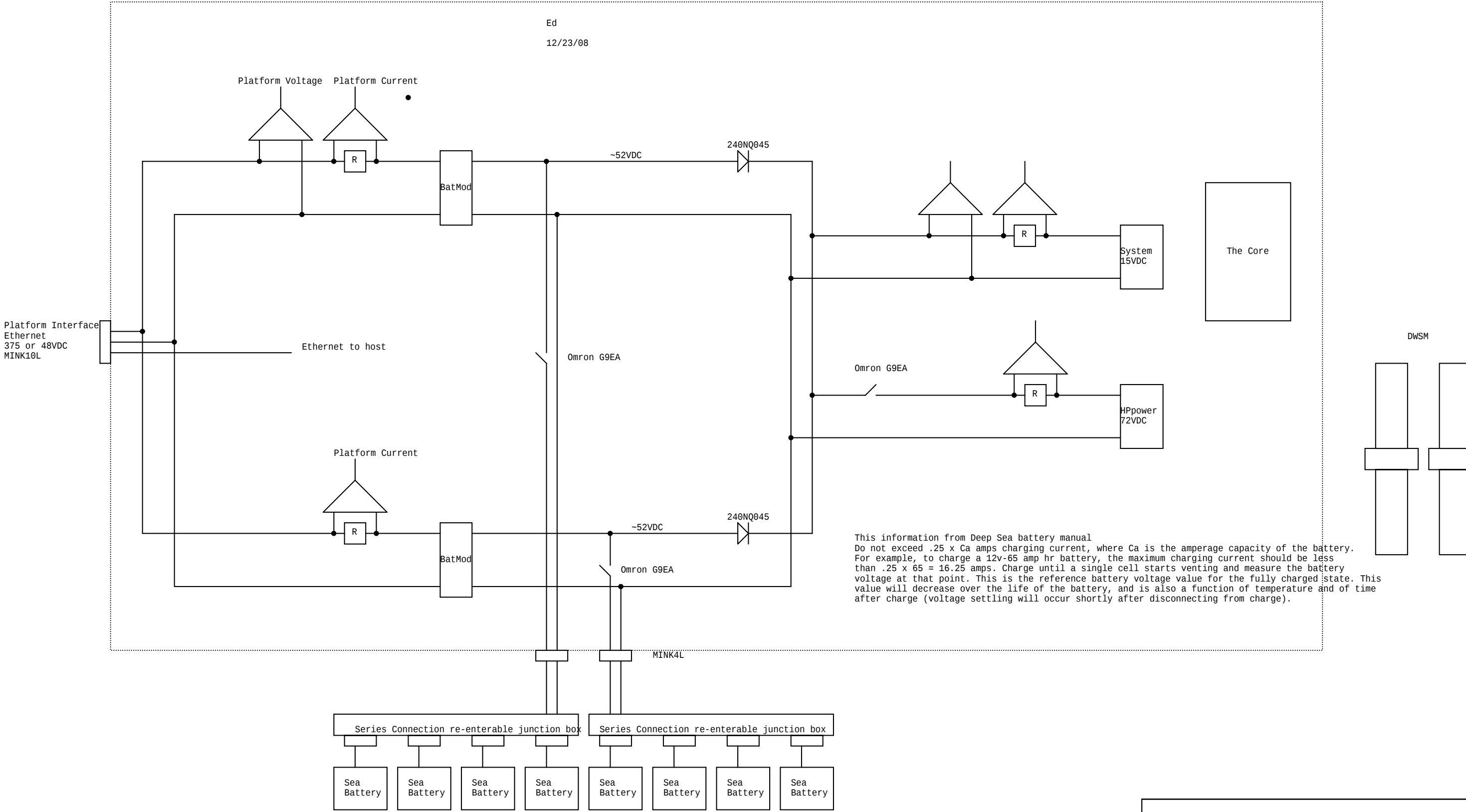
Project
ESP

Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File DWSM4km	Rev 0.0
Designer <Designer>	Date: Wednesday, March 16, 2011				
Sheet 1 of 1					

Hi Scott - Additional thought, will the BatMods be happy having their outputs paralleled? Regular Vicors don't like it and don't share load gracefully unless they're master-slaved together on the primary side... When they are independent, I have resorted to staggering output voltages by a few percent to make one the clear "prime" and the other the clear "backup" unit. BatMod in current source mode shouldn't care, but what about when it is in float-voltage mode...

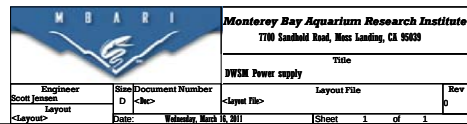
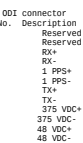
Are those Omron relays available in latching form? Looks like power for two coils will almost equal your instrument load... NTTAWWT.

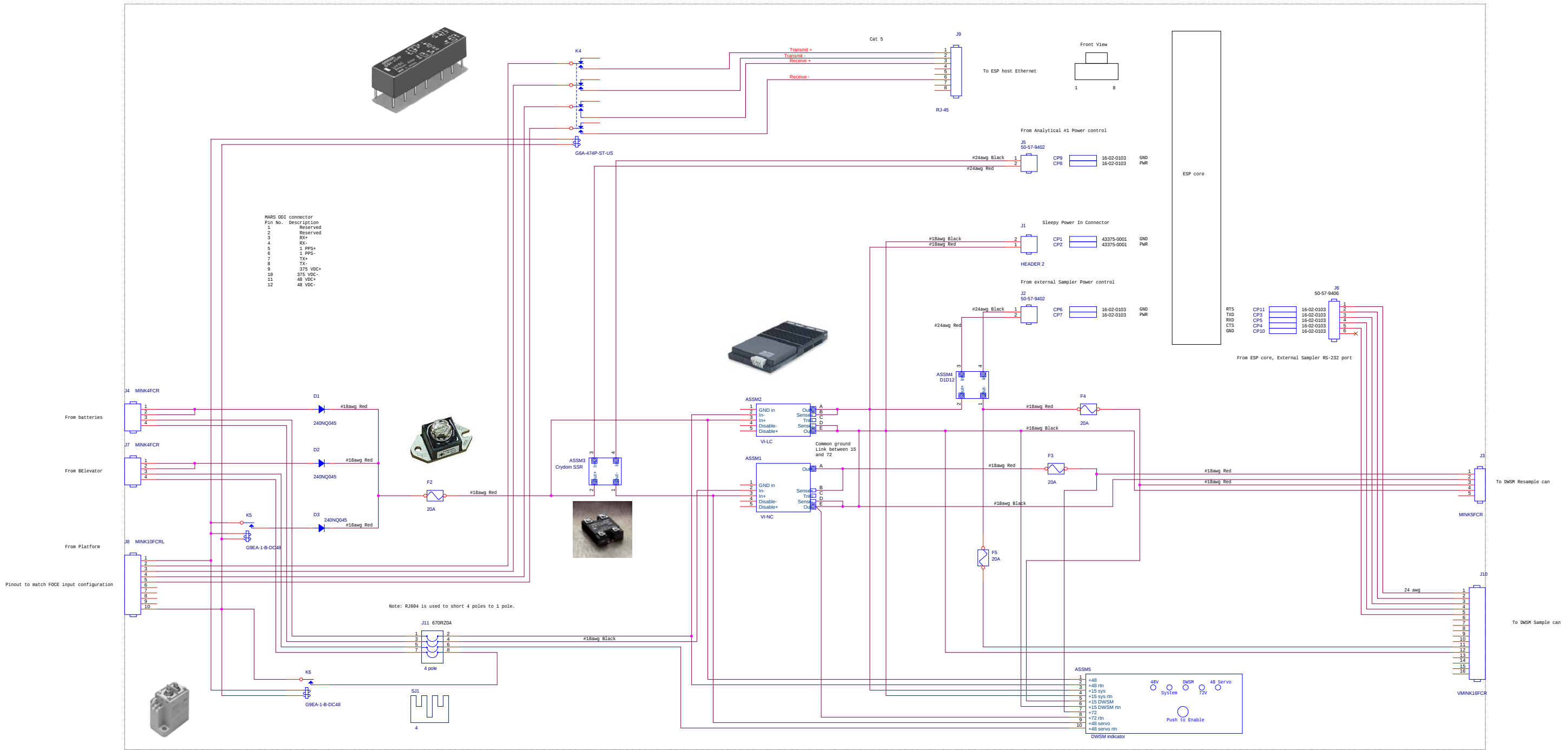
Ed
12/23/08

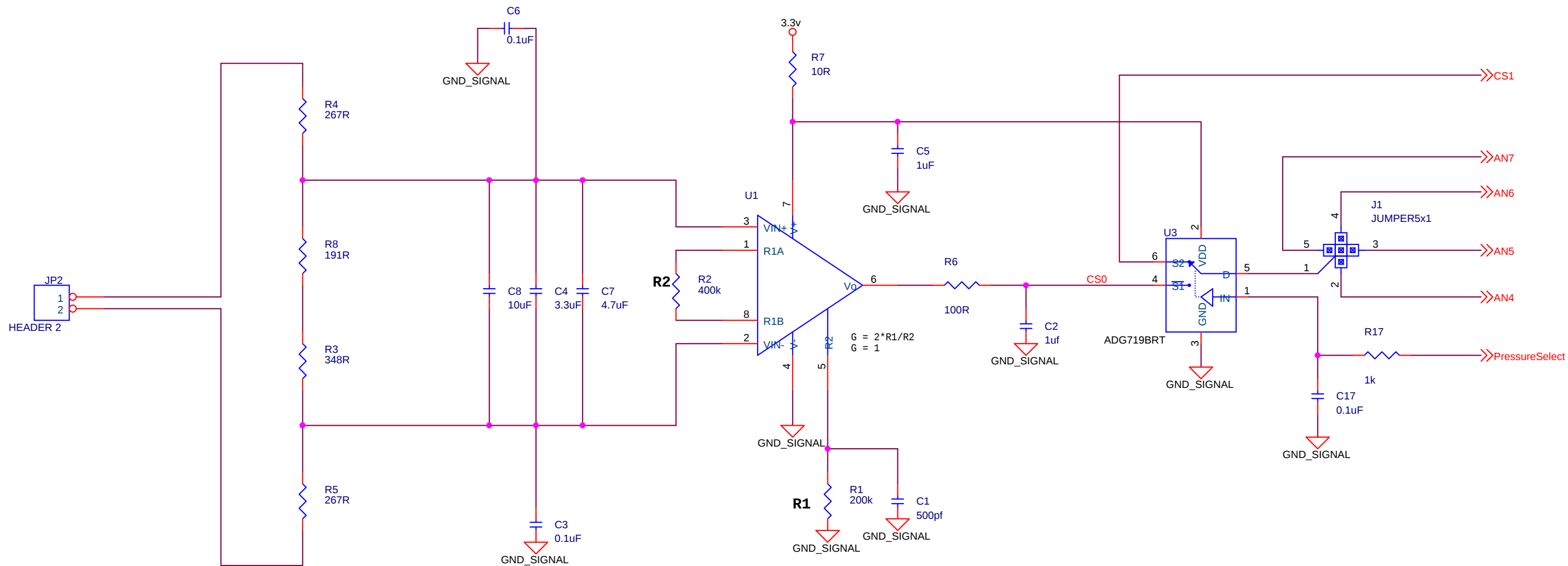


This information from Deep Sea battery manual
Do not exceed .25 x Ca amps charging current, where Ca is the amperage capacity of the battery.
For example, to charge a 12v-65 amp hr battery, the maximum charging current should be less
than .25 x 65 = 16.25 amps. Charge until a single cell starts venting and measure the battery
voltage at that point. This is the reference battery voltage value for the fully charged state. This
value will decrease over the life of the battery, and is also a function of temperature and of time
after charge (voltage settling will occur shortly after disconnecting from charge).

Title <Title>		
Size B	Document Number <Doc>	Rev <RevCode>
Date:	Wednesday, March 16, 2011	Sheet 1 of 1

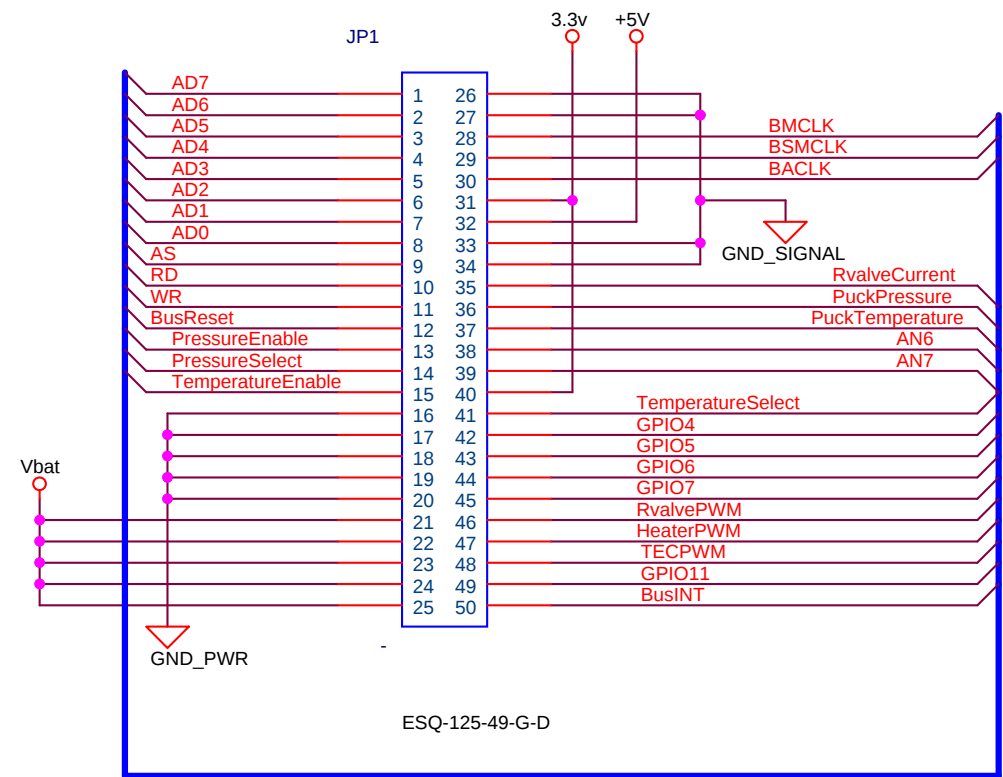




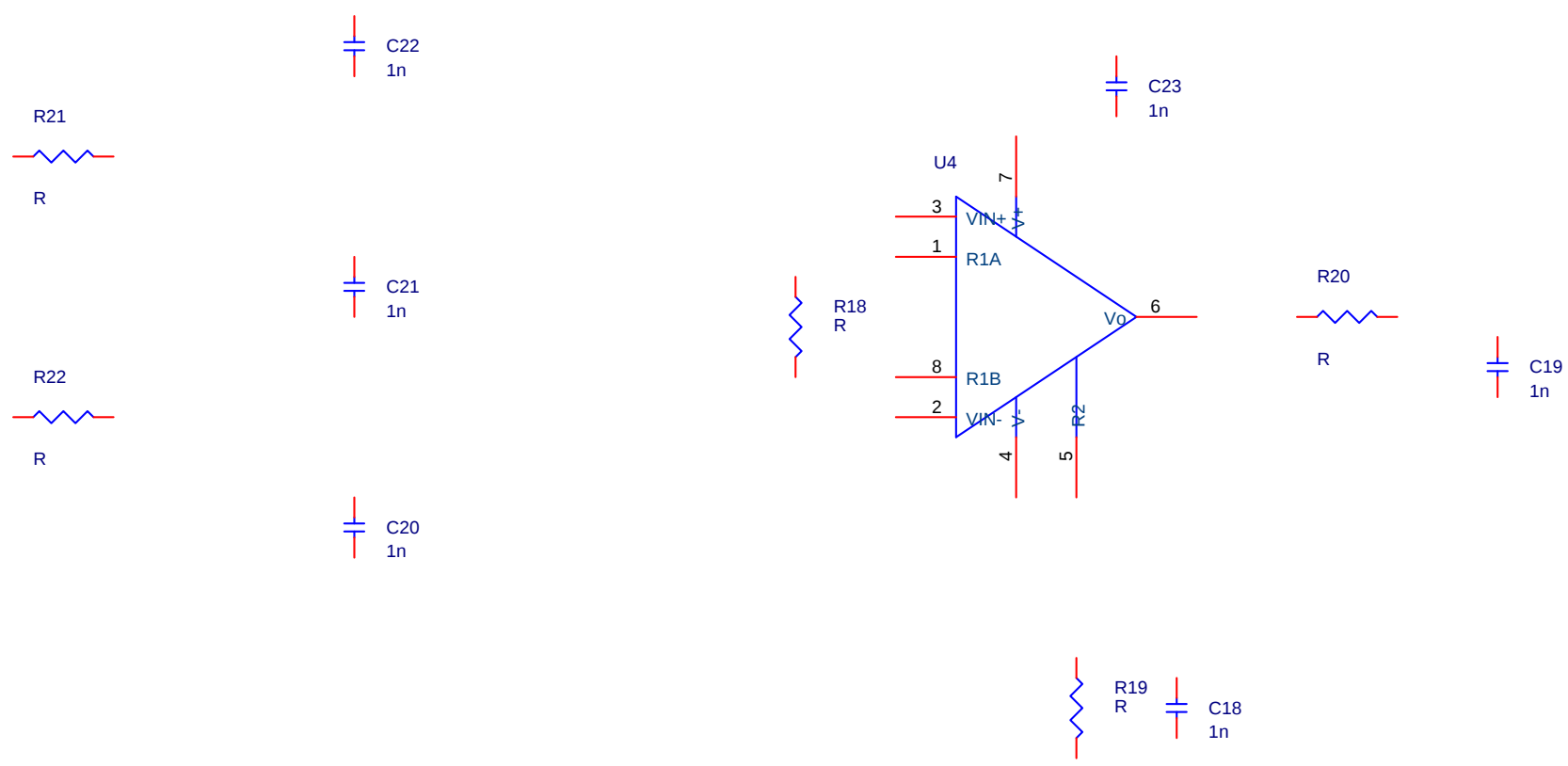


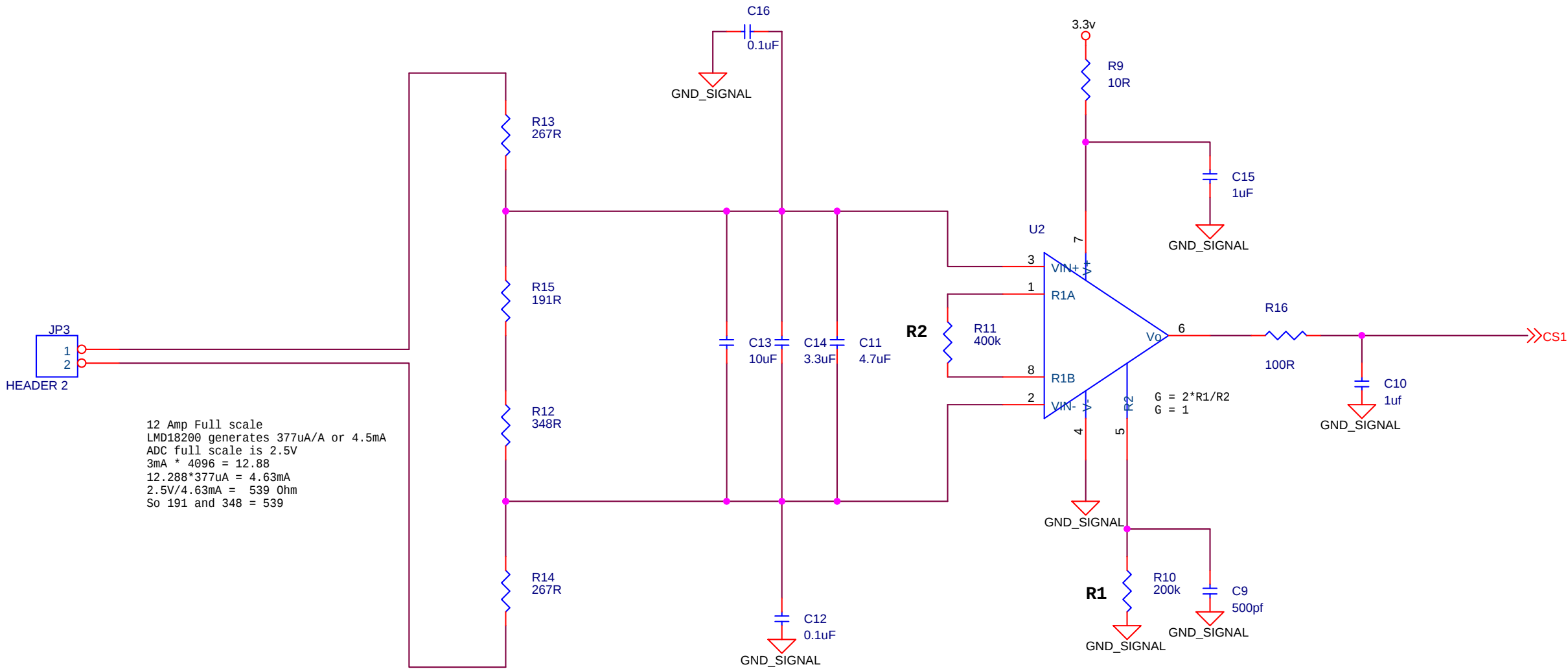
12 Amp Full scale
LMD18200 generates 377uA/A or 4.5mA
ADC full scale is 2.5V
3mA * 4096 = 12.88
12.288 * 377uA = 4.63mA
2.5V / 4.63mA = 539 Ohm
So 191 and 348 = 539

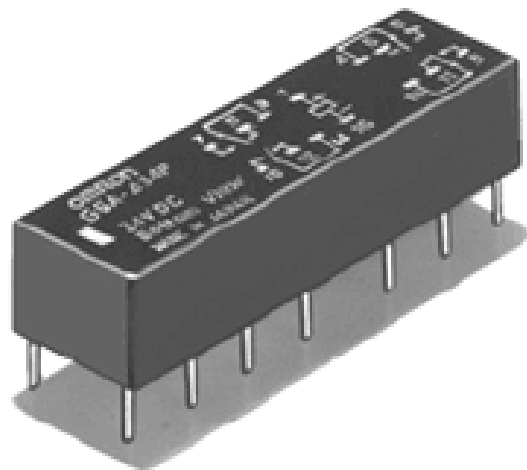
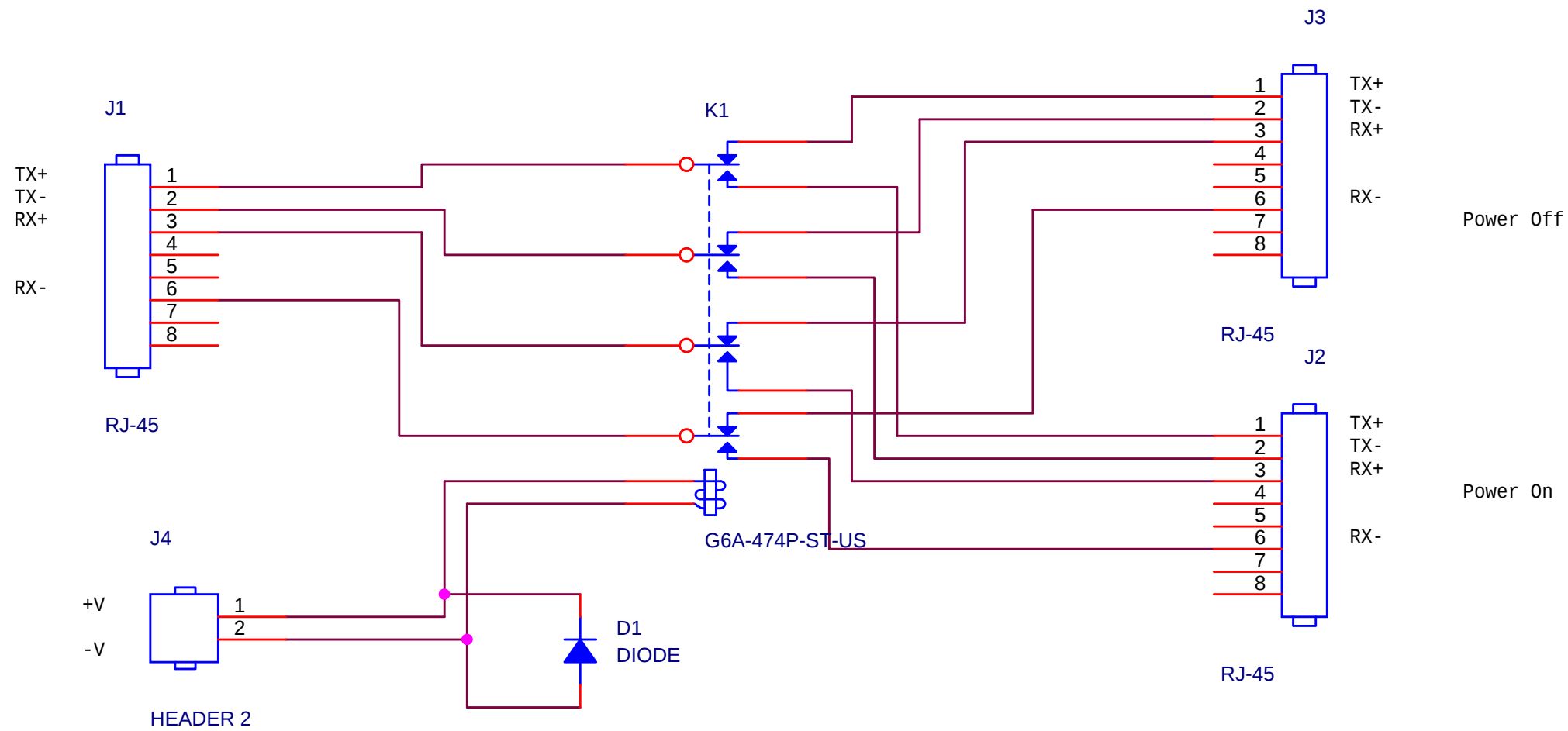
			Monterey Bay Aquarium Research Institute		
			7700 Sandhold Road, Moss Landing, CA 95039		
			Title DWSM Servo Current Amp 1		Project <Project>
Engineer SJensen	Size B	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev <Rev>
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	
2			1		



Here are some concerns:
1) Common mode range at 0V input. INA326 has only 20mv below to work. INA122 has 100mV but has a gain of 5
2)it would be nice to be able to use only 15V and not +/- 15.
3)







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Title
Ethernet Disconnect

Project
<Project>

Engineer
<Engineer>
Designer
<Designer>

Size
A

Document Number
<Doc>

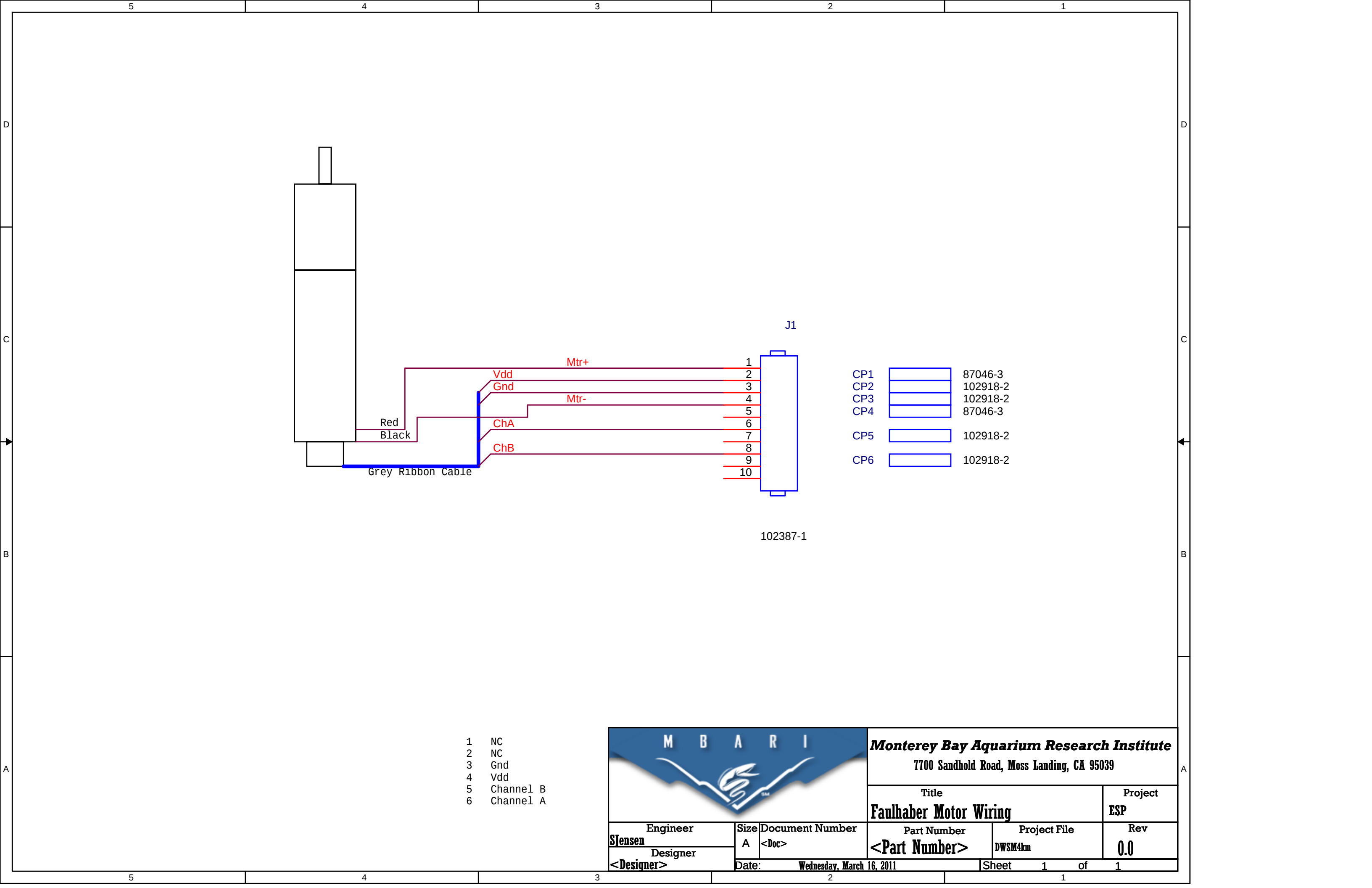
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Project File
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Rev
<Rev>

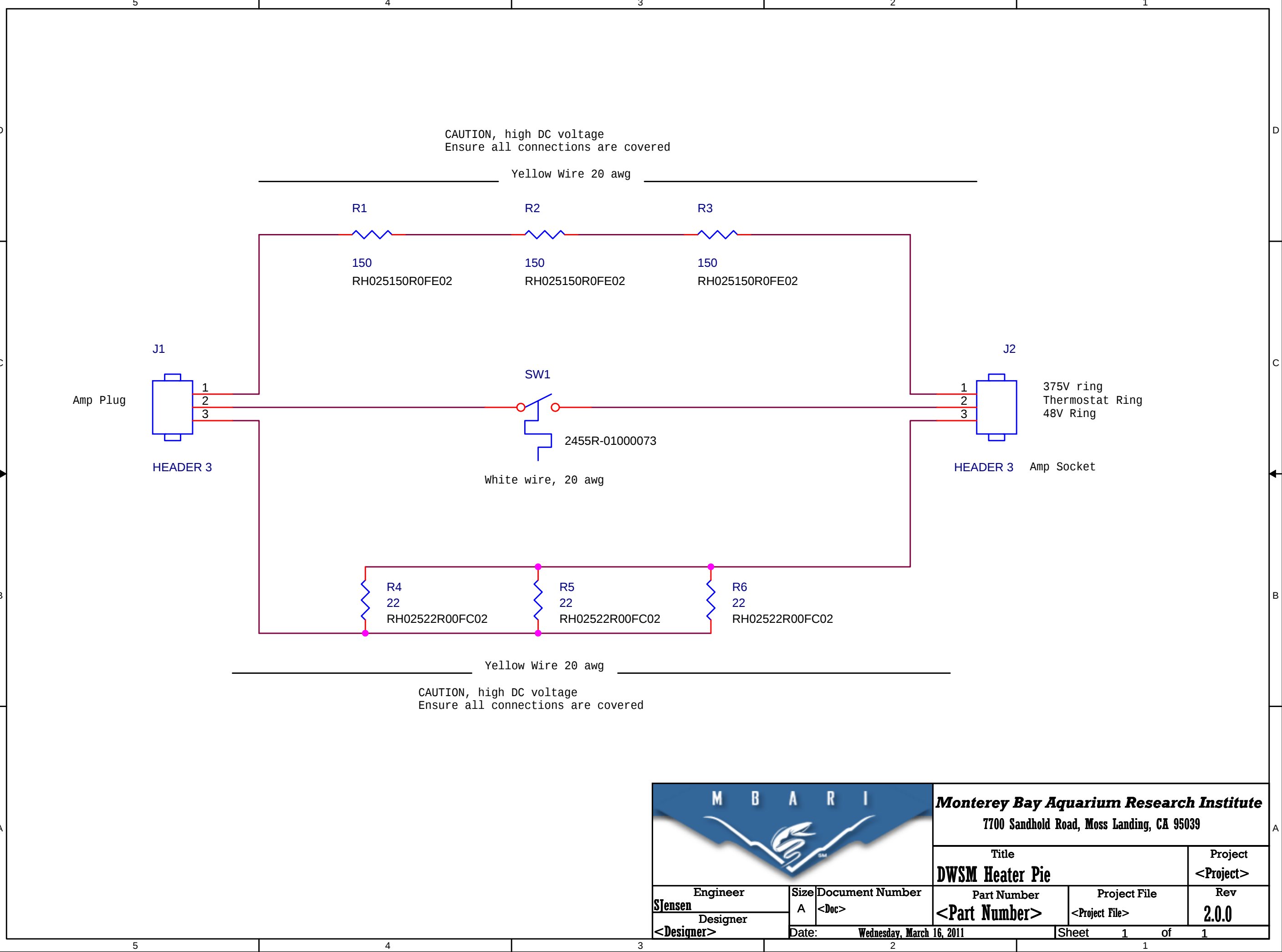
Date: Wednesday, March 16, 2011

Sheet 1 of 1



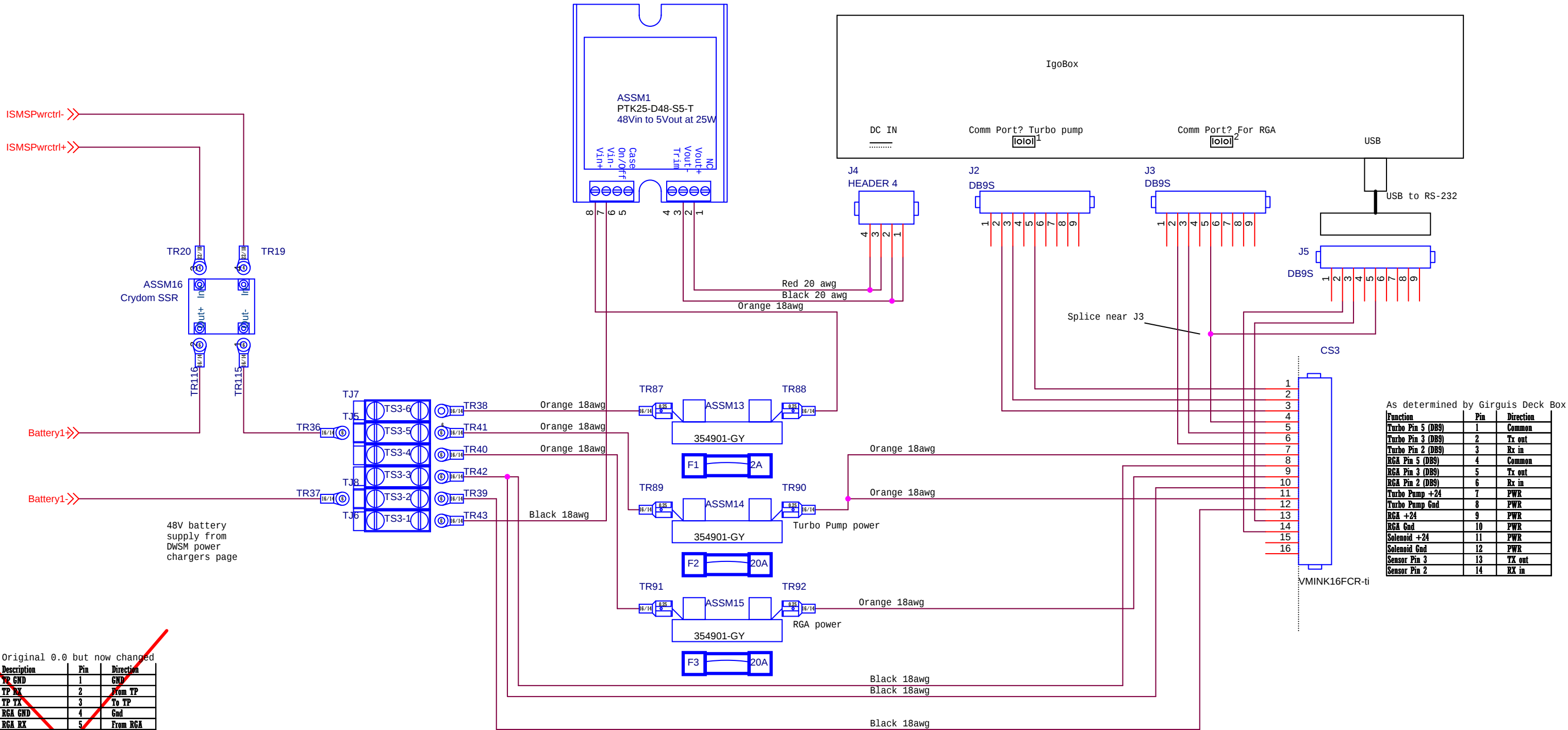
- 1 NC
- 2 NC
- 3 Gnd
- 4 Vdd
- 5 Channel B
- 6 Channel A

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title Faulhaber Motor Wiring		Project ESP	
Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File DWSM4km	Rev 0.0
Designer <Designer>		Date: Wednesday, March 16, 2011			
		Sheet 1 of 1			



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039					
Title DWSM Heater Pie				Project <Project>	
Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev 2.0.0
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	

Description	Pin	Direction
DCD	1	In
RX	2	In
TX	3	Out
DTR	4	Out
GND	5	Gnd
DSR	6	In
RTS	7	Out
CTS	8	In
RI	9	In



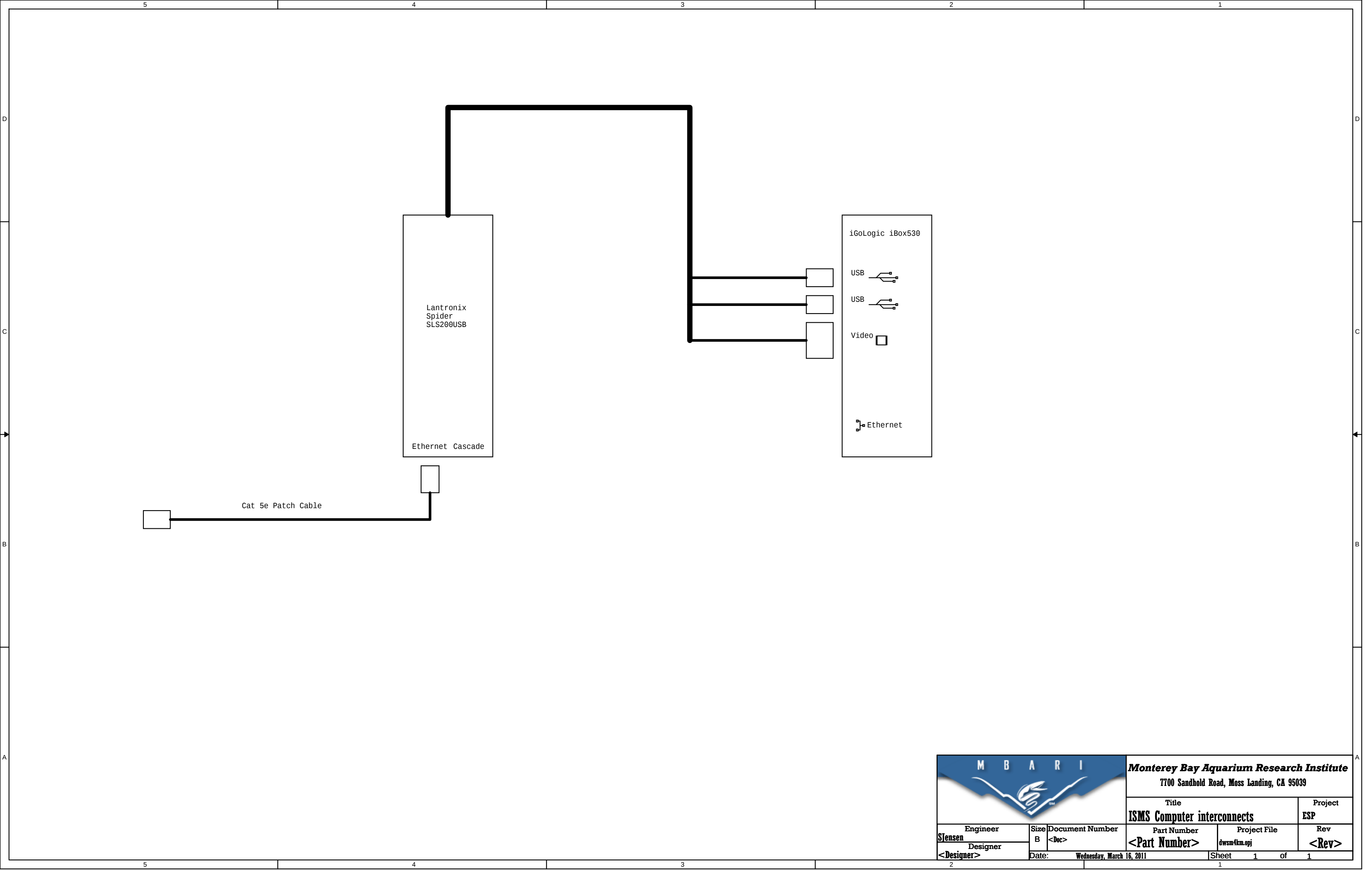
Original 0.0 but now changed

Description	Pin	Direction
TP GND	1	GND
TP RX	2	From TP
TP TX	3	To TP
RGA GND	4	Gnd
RGA RX	5	From RGA
RGA TX	6	To RGA
RGA DTR	7	To RGA
RGA DSR	8	From RGA
RGA RTS	9	To RGA
RGA CTS	10	From RGA
TP 24V	11	To TP
TP 24V com	12	To TP
TP 24V com	13	Gnd
TP 24V com	14	Gnd
RGA 24V	15	To RGA
RGA 24V com	16	GND

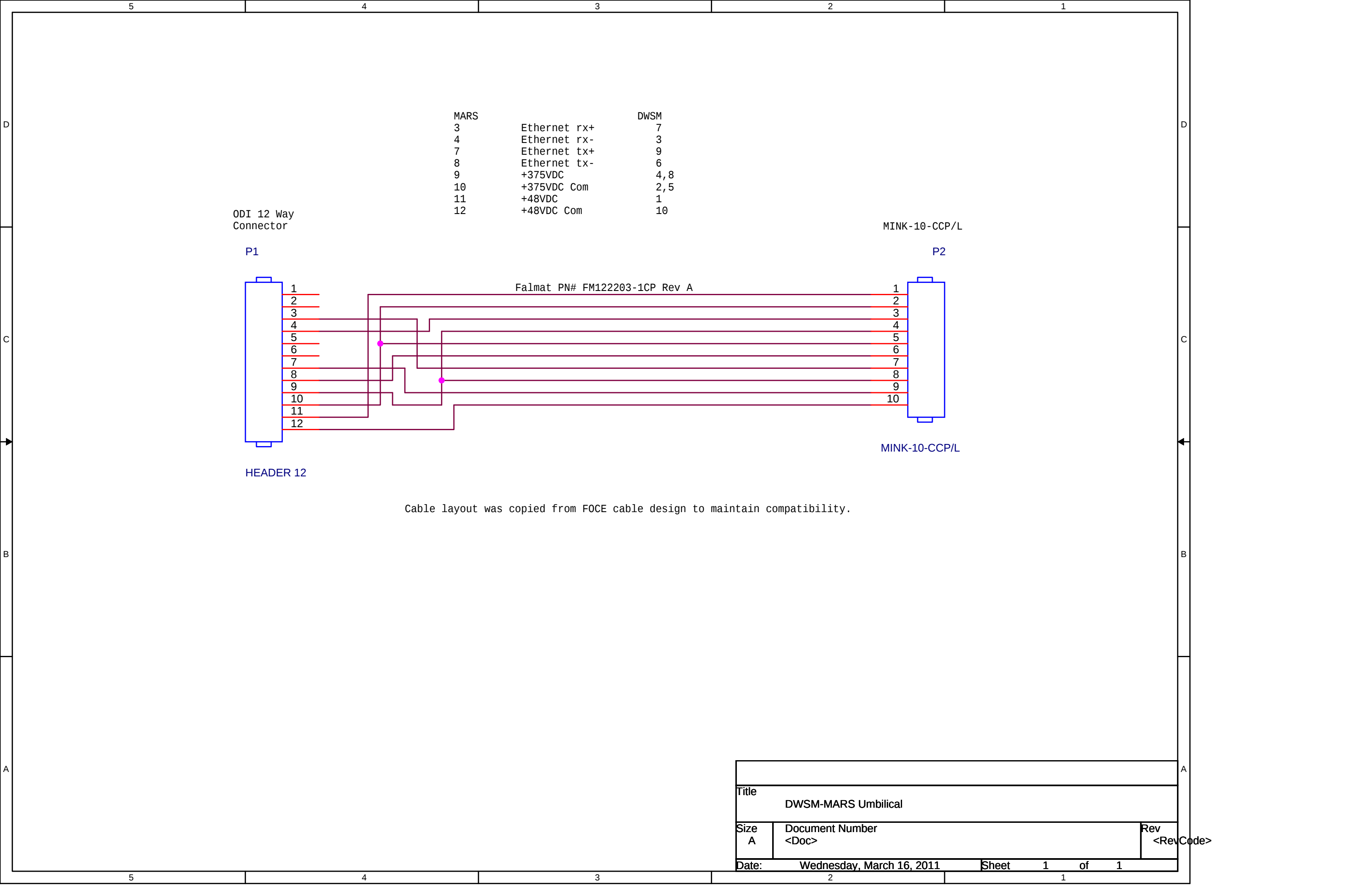


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7700 Sandhold Road, Moss Landing, CA 95039

Title ISMS Power		Project ESP	
Engineer SJensen	Size B	Document Number <Doc>	Part Number <Part Number>
Designer <Designer>	Date: Wednesday, March 16, 2011	Project File dwsm4km.opj	Rev 2.0.0
Sheet 1 of 1		1	



		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title ISMS Computer interconnects			Project ESP
Engineer SJensen	Size B	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj	Rev <Rev>
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	



5

4

3

2

1



Monterey Bay Aquarium Research Institute

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Title

DWSM to MARS Cable

Project

ESP

Engineer

Stensen

	Size
--	-------------

A

Document Number

<Doc>

Part Number

<Part Number>

Project File

DWSM4km

Rev

0.0

Designer

<Designer>

Date:

Wednesday, March 16, 2011

Sheet

1

of

1

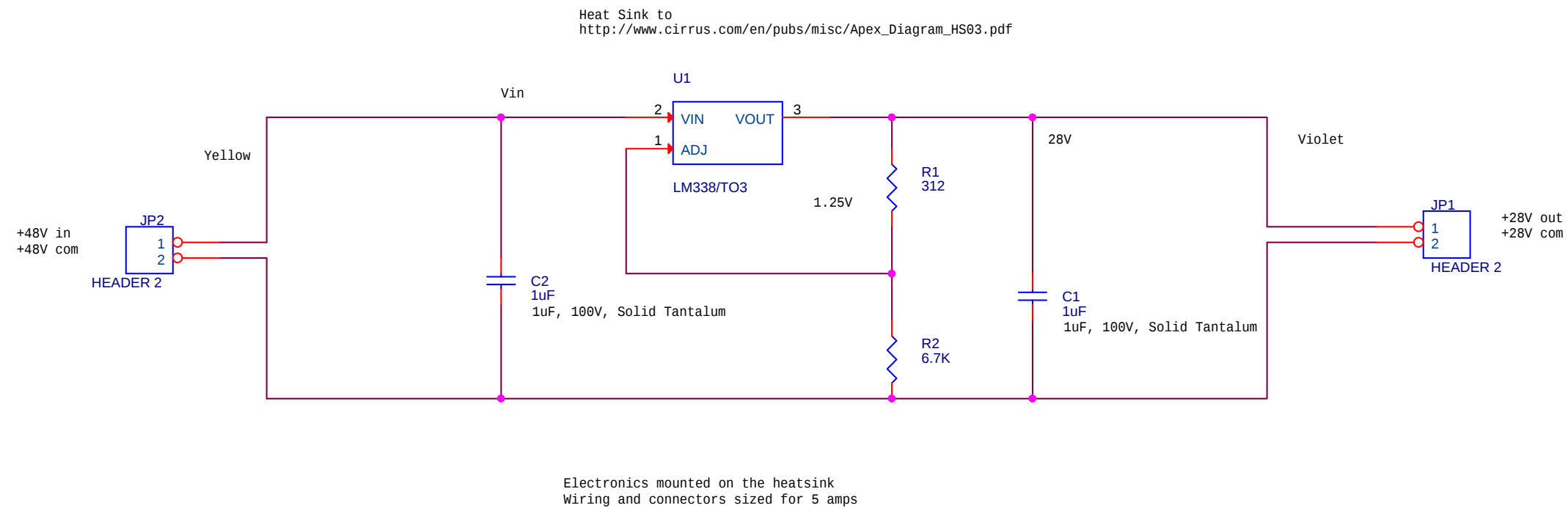
5

4

3

2

1



Power Input - From Main Ball
Raw Battery Power (10-16) 4Amps
Raw Battery Ground
High Voltage (90VDC) 12Amps cont., 24Amps inter.
High Voltage Ground
MINKSFCL 5x16awg

I2C bus - to Resample Can
System +3.3 1Amp
System +5 1Amp
System Ground
SCL
System Ground
SDA
System Ground
MINK16FCR

Pressure signals - To and From Resample Can
Raw to Resample Can
System Ground
Raw From Resample Can
System Ground
Signals to Resample Dwarf:
SSS
SES
SSS
Signals from Resample Dwarf:
RSS
RES
RBS
Ground - caution for ground loop
MINK19FCR

Power Resample Can Harness

I2C Resample Can Harness

Face View of Circuit Board connectors
Rear View of Connector Shroud as plugged into Board

RV4 - RV3
SOV - RV3
RV4 - RV2
FOV - RV1

Pressure Exchange Resample Can Harness

High Pressure Pump Control Harness

ASSM12

HP pump

ASSM11

Maxon10pinAdapter

Encoder
IE pump
Brushless DC
Motor

ASSM10

Maxon10pinAdapter

Encoder located in 1 atmosphere housing

Encoder

HP pump
Brushless DC
Motor

BM4FS

OMAMP

Motor located INSIDE oil compensated housing

Waste Bag Full (FLS)

PS2

Pressure Switch

Waste Bag very Empty (RLS)

PS4

Pressure Switch

Waste Bag Empty (Home)

PS7

Pressure Switch

Water Sensor

Stir Pump

MCBH16F

MCOM16H

To Oil Chamber Resample Can Harness

WENA Harness

Water Sensor

To Oil Chamber Resample Can Harness

Pressure Sensor Harness

ASSM8

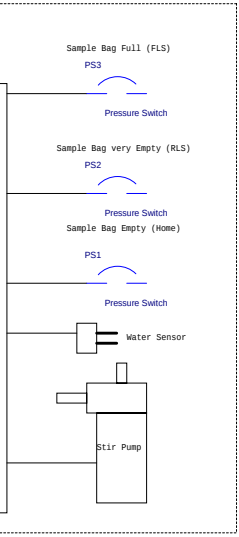
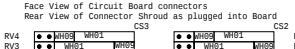
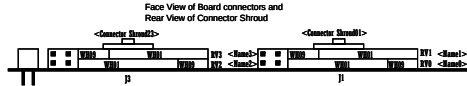
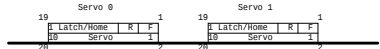
Pressure Sensor

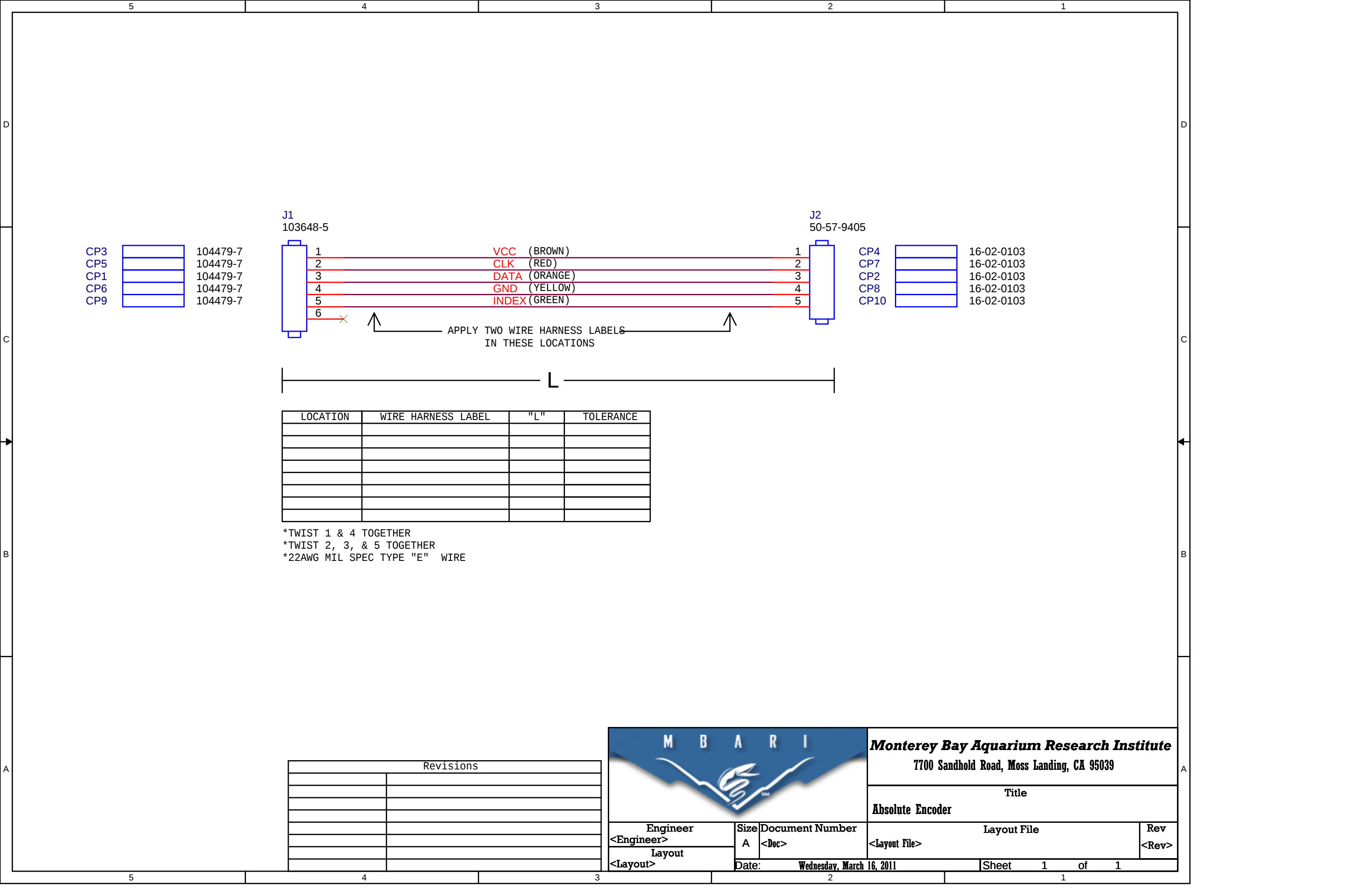
I2C bus - to Waste Can
System +3.3 1Amp
System +5 1Amp
System Ground
SCL
System Ground
SDA
System Ground
WINK16FCR

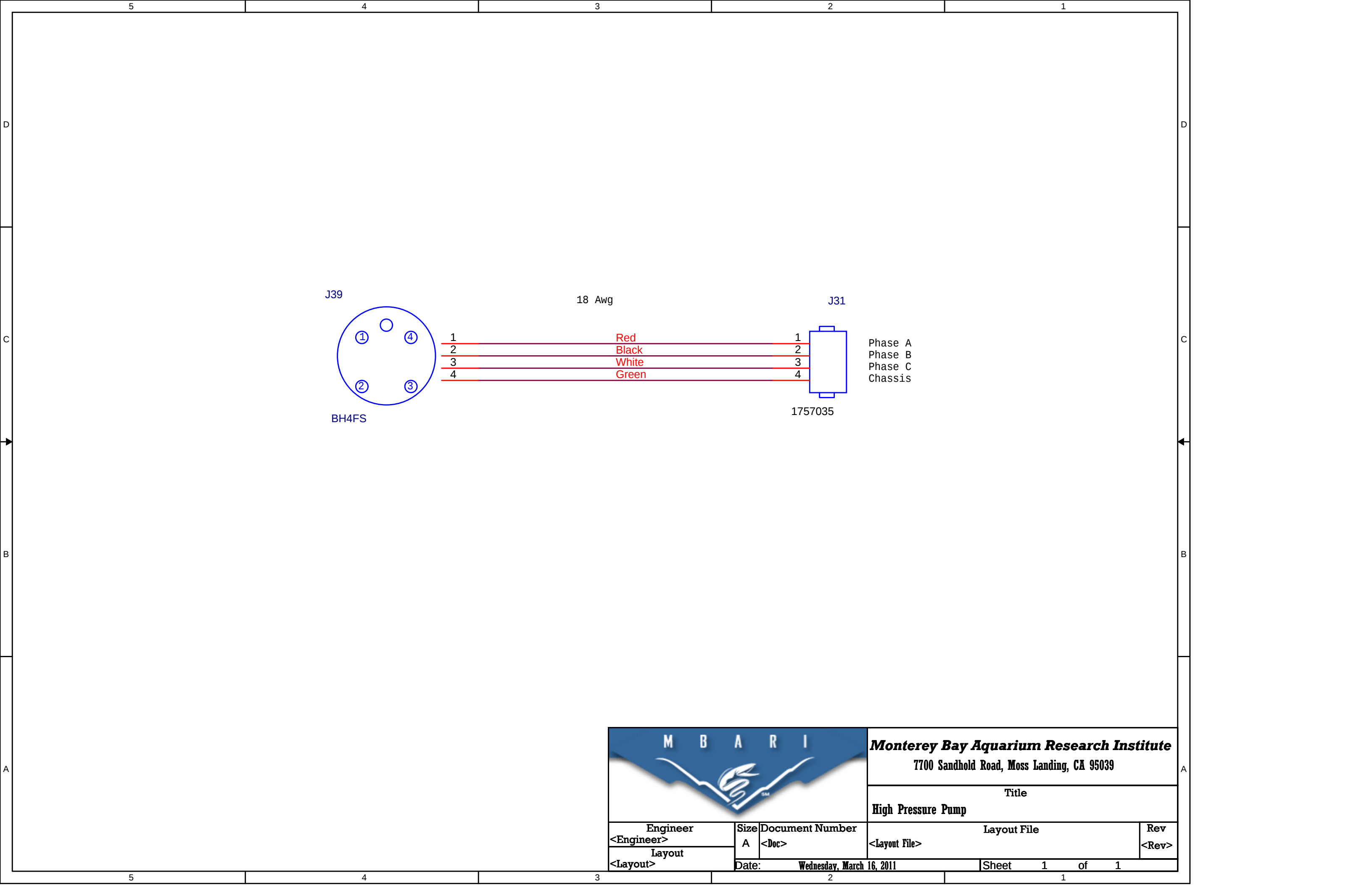
DWSM Gateway to Main Ball
Raw Battery Power (18-16V) 4Amps
TXD
RXD
RTS
CTS
Ground
WINK16FCR

External Devices
Sample Wand Pump power
Sample Wand Pump gnd
Valve #1 +
Valve #1 -
Valve #2 +
Valve #2 -
Valve #3 +
Valve #3 -
Valve #4 +
Valve #4 -
Wand Cap +
Wand Cap -
AMW/12

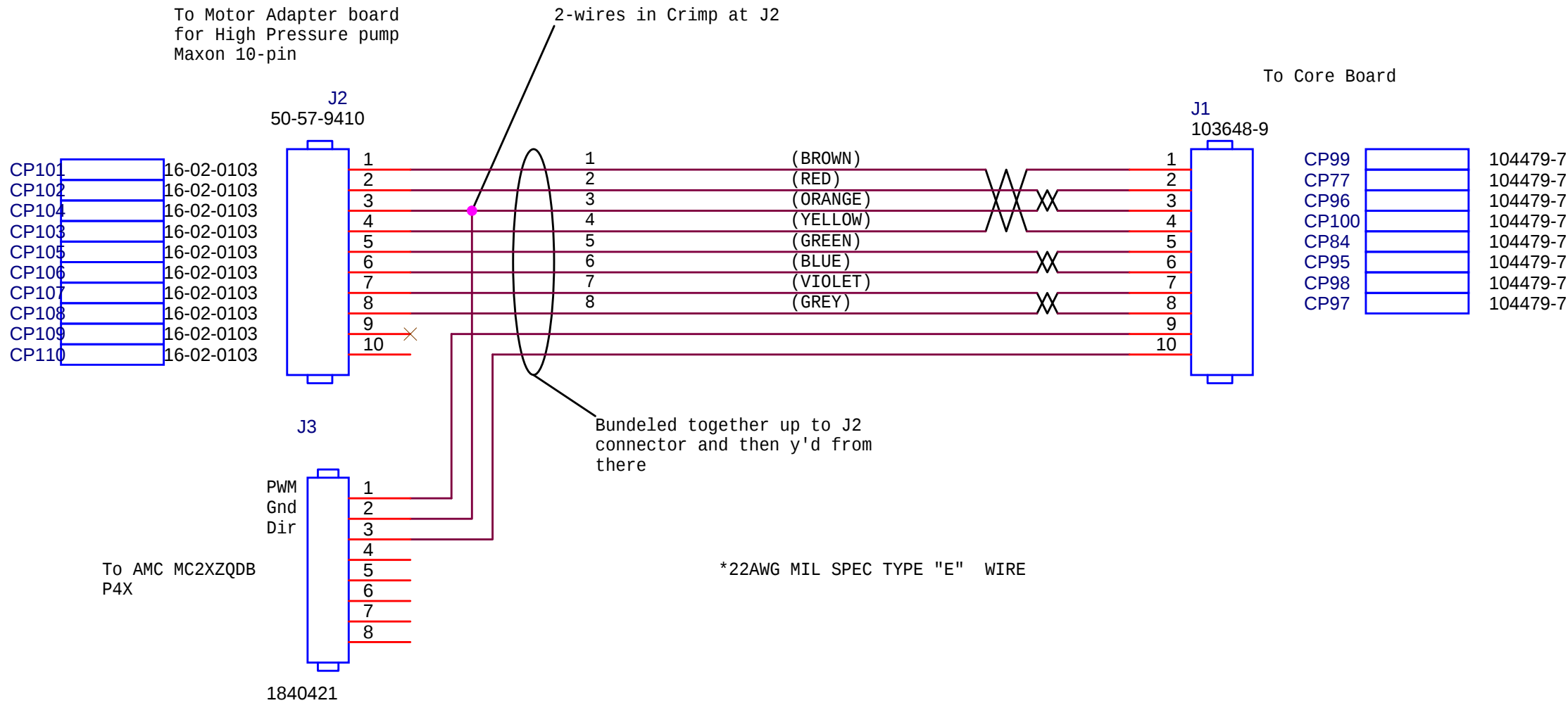
Pressure signals - To and From Waste Can
Raw to Resample Can
System Ground
Raw From Resample Can
System Ground
Signals to Resample Dwarf:
SES
SES
SES
Signals from Resample Dwarf:
RES
RES
RES
Ground - caution for ground loop
WINK16FCR



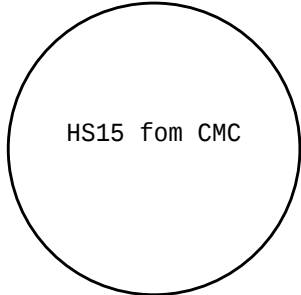




Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
Title High Pressure Pump			
Engineer <Engineer>	Size A	Document Number <Doc>	Rev <Rev>
Layout <Layout>	Date: Wednesday, March 16, 2011		
Sheet 1 of 1		Layout File <Layout File>	

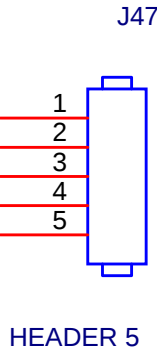


Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
Title High Pressure Pump Control			
Engineer <Engineer>	Size A	Document Number <Doc>	Rev <Rev>
Layout <Layout>	Layout File <Layout File>		
Date: Wednesday, March 16, 2011		Sheet 1 of 1	

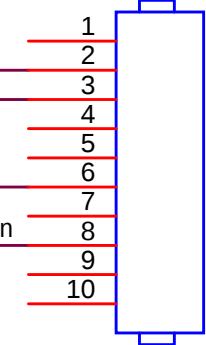


- | | |
|--------------|----------|
| Red | +VDC |
| Black | Common |
| Brown | Out A |
| White | Out A' |
| Blue | Out B |
| Green | Out B' |
| Orange | Out Z |
| Yellow | Out Z' |
| Violet | Out U |
| Gray | Out U' |
| Brown/White | Out V |
| Red/White | Out V' |
| Orange/White | Out W |
| Yellow/White | Out W' |
| Black/White | Case Gnd |
| Bare wire | Shield |

- Red
- Black
- Blue
- Brown
- Brown/White
- Violet
- Orange/White



To AMC MC2XZQD
P3X



- Red
- Black
- Blue
- Brown

To Maxon 10 pin Adapter Board

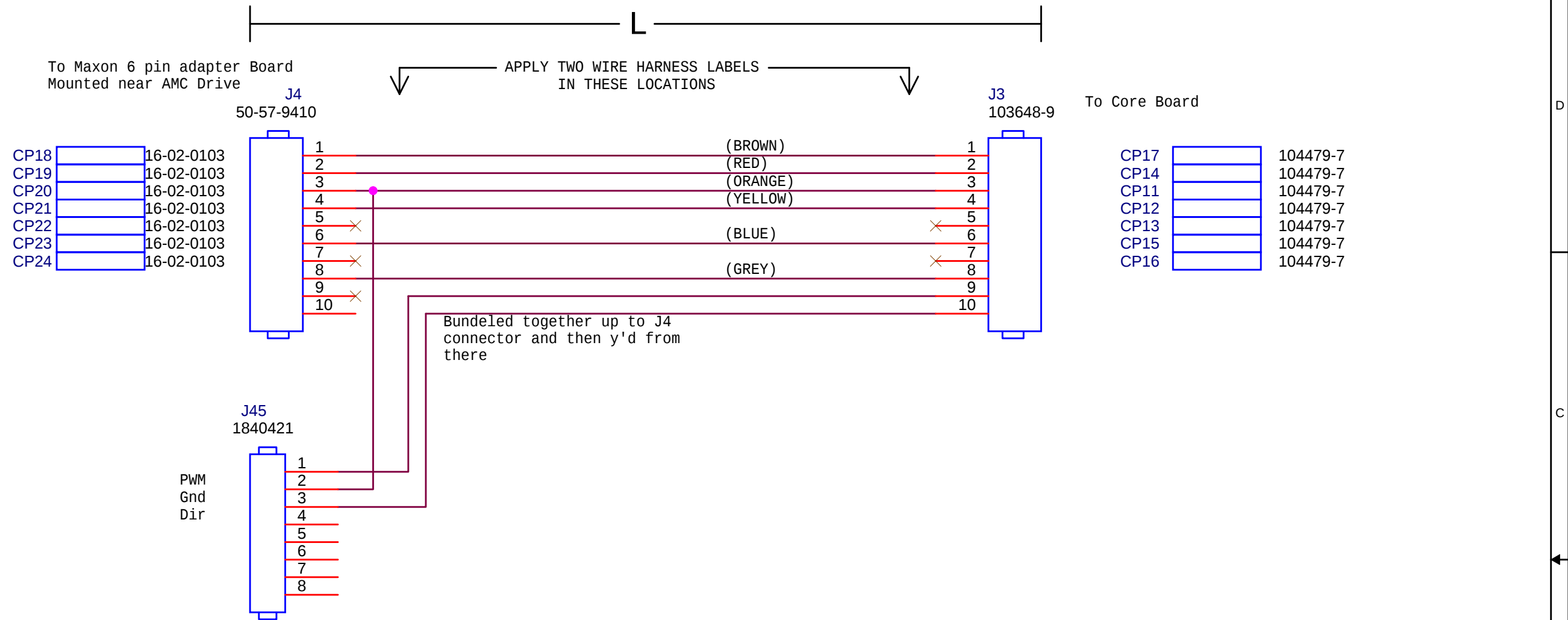
- Brown/White
- Violet
- Orange/White

To Piccolo



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Engineer <Engineer>	Size A	Document Number <Doc>	Part Number <Part Number>	Project File <Project File>	Rev <Rev>
Designer <Designer>	Date: Wednesday, March 16, 2011			Sheet 1 of 1	

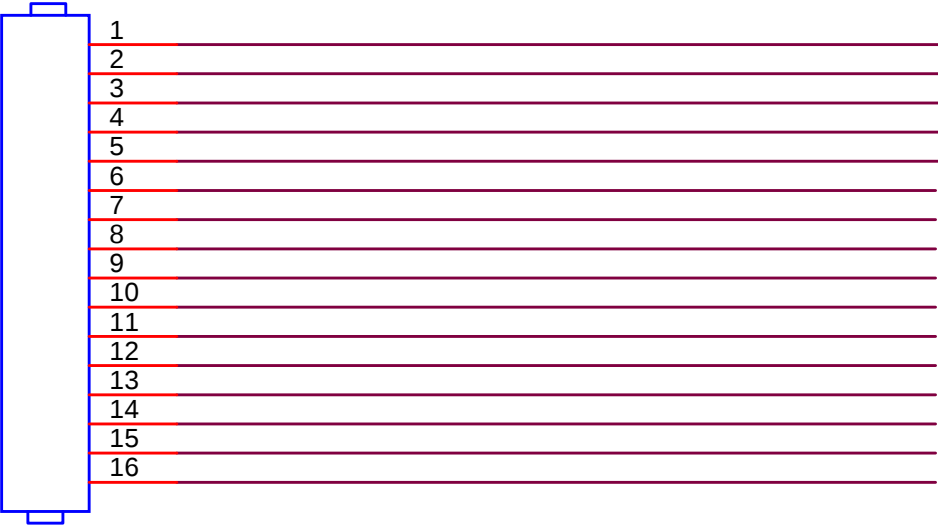




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Title <Title>		Project <Project>	
Engineer <Engineer>	Size A	Document Number <Doc>	Part Number <Part Number>
Designer <Designer>		Project File <Project File>	Rev <Rev>
Date: Wednesday, March 16, 2011		Sheet 1 of 1	

C1, C3



J5



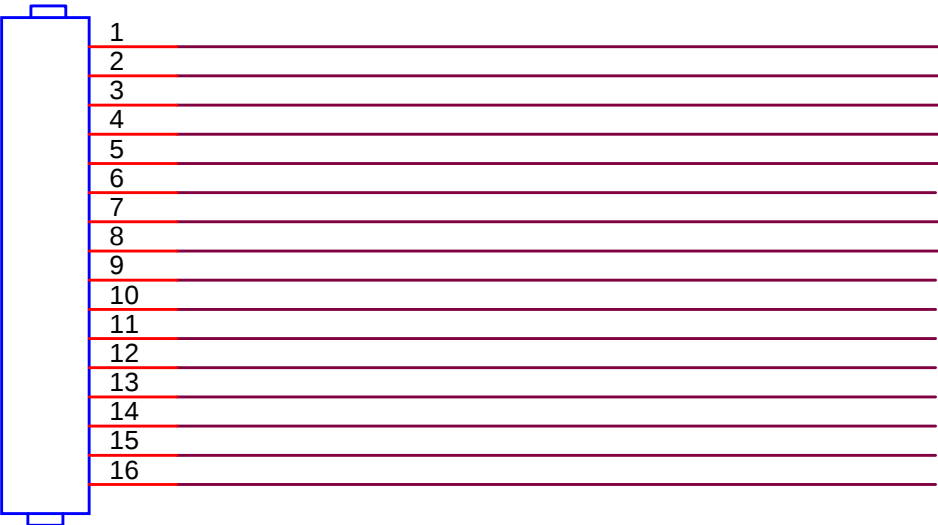
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CP28		16-02-0103	RTS
CP29		16-02-0103	TXD
CP25		16-02-0103	RXD
CP26		16-02-0103	CTS
CP27		16-02-0103	GND

VMINK16FCR

All wires #22 awg white, with pin number labels

C2



J7



50-57-9406

CP69		16-02-0103	RTS
CP70		16-02-0103	TXD
CP66		16-02-0103	RXD
CP67		16-02-0103	CTS
CP68		16-02-0103	GND

ISUS15Vpwr

ISUS15Vrtn

VMINK16FCR

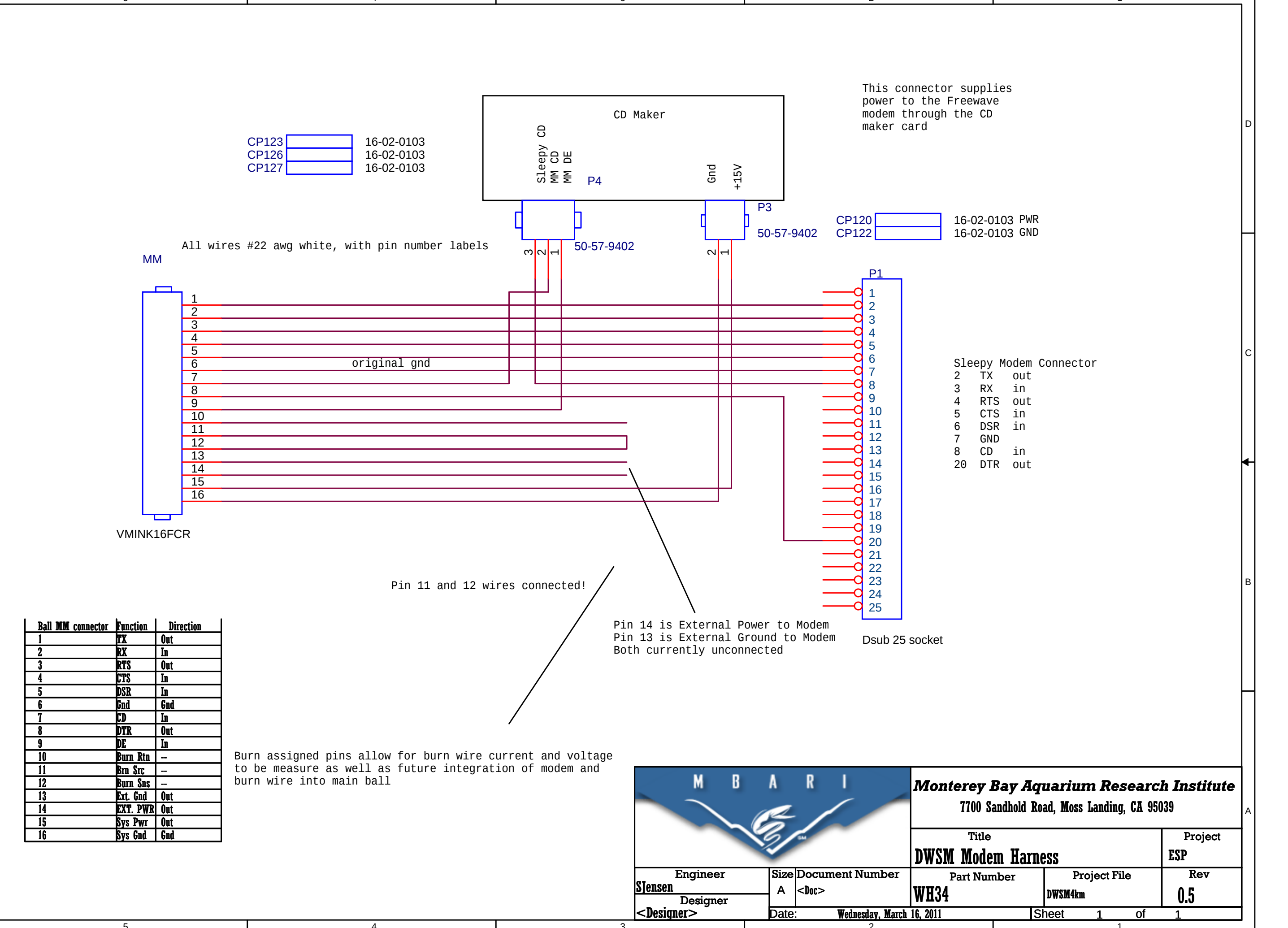


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Title		Project
DWSM Contextual Sensor Harness		ESP

Engineer	Size	Document Number	Part Number	Project File	Rev
Stensen	A	<Doc>	WH33	DSM4km	<Rev>

Designer	Date:	Wednesday, March 16, 2011	Sheet	1	of	1
<Designer>						



Ball MM connector	Function	Direction
1	TX	Out
2	RX	In
3	RTS	Out
4	CTS	In
5	DSR	In
6	Gnd	Gnd
7	CD	In
8	DTR	Out
9	DE	In
10	Burn Rtn	--
11	Brn Src	--
12	Burn Sns	--
13	Ext. Gnd	Out
14	EXT. PWR	Out
15	Sys Pwr	Out
16	Sys Gnd	Gnd

Burn assigned pins allow for burn wire current and voltage to be measure as well as future integration of modem and burn wire into main ball



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Engineer
Stensen
Designer
<Designer>

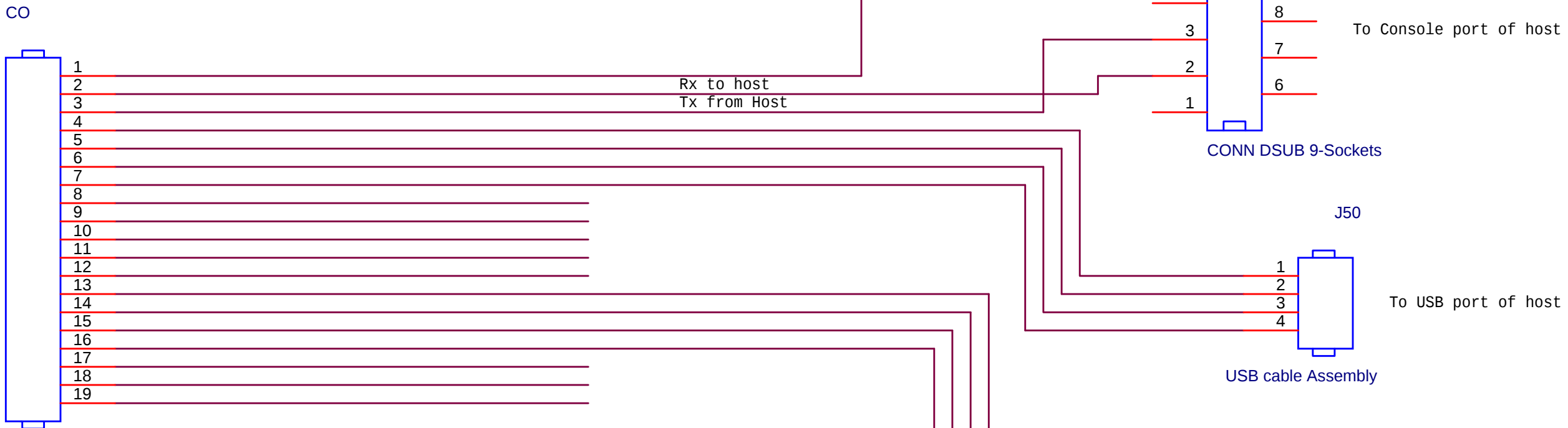
Size
A
Document Number
<Doc>
Date:
Wednesday, March 16, 2011

Part Number
WH34

Project File
DWSM4km

Project
ESP
Rev
0.5

Sheet 1 of 1



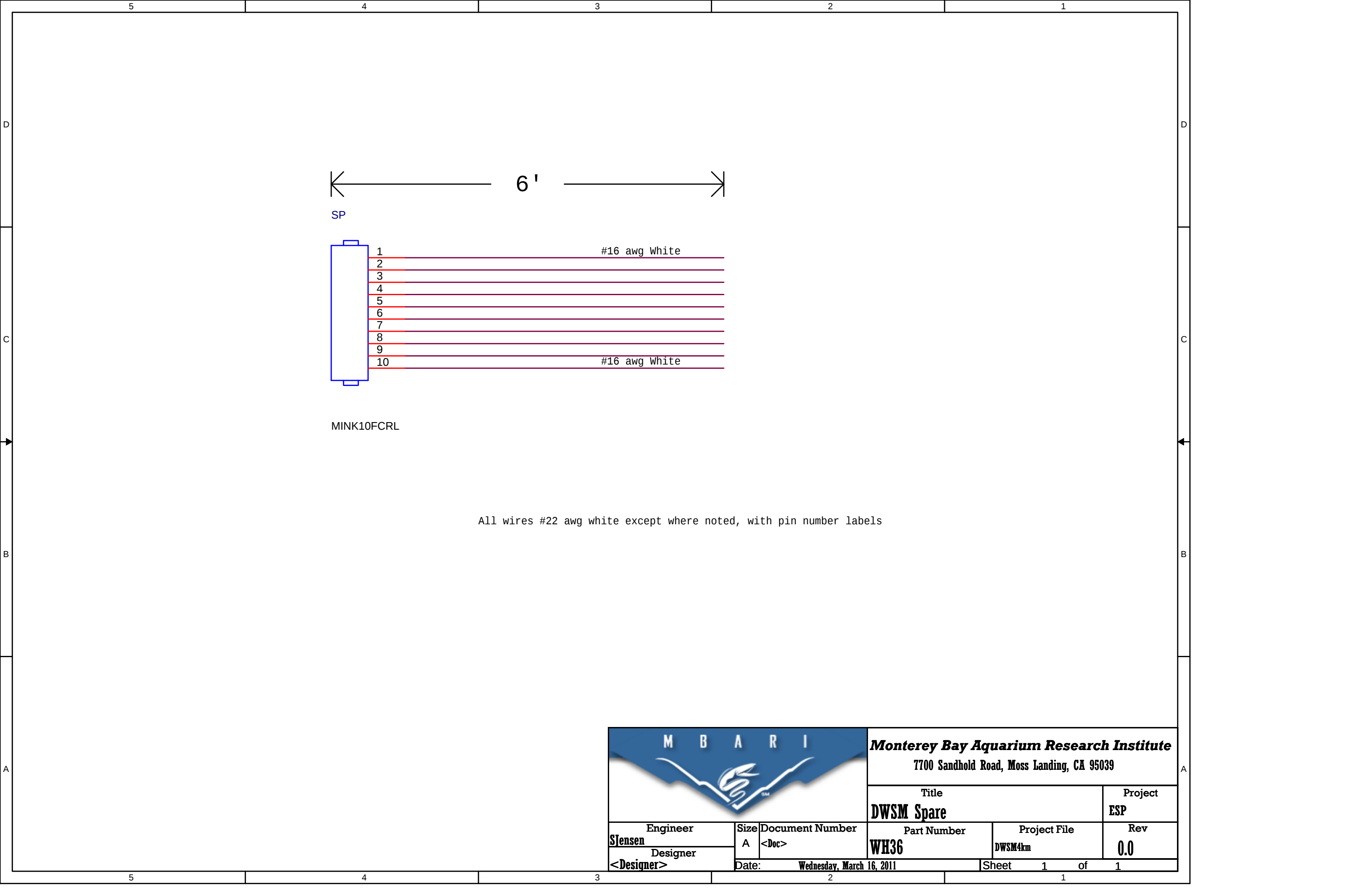
MINK19FCR All wires #22 awg black, with pin number labels

Ball CO connector	Function	Direction
1	Sig Gnd	Gnd
2	RX	In
3	TX	Out
4	Vcc	Power
5	D-	I/O
6	D+	I/O
7	Gnd	Gnd
8	TBD	--
9	TBD	--
10	TBD	--
11	TBD	--
12	TBD	--
13	Eth Tx+	In
14	Eth Tx-	In
15	Eth Rx+	Out
16	Eth Rx-	Out
17	TBD	--
18	TBD	--
19	TBD	--

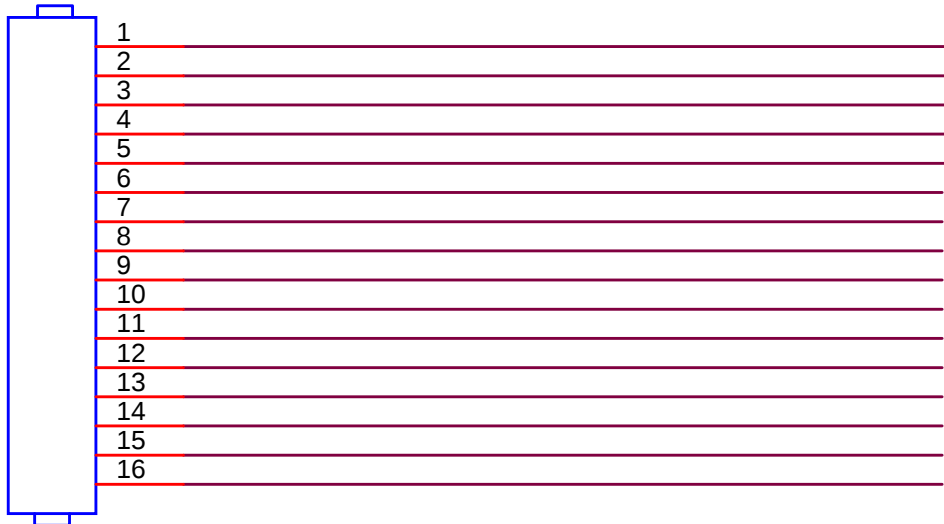


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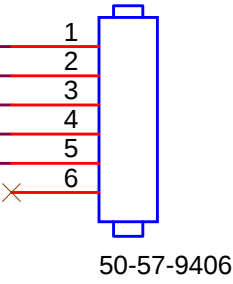
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DWSM Console Harness		ESP	
Engineer	Size	Document Number	Rev
Slensen	A	<Doc>	0.1
Designer		Part Number	Project File
<Designer>		WH35	DWSM4km
Date: Wednesday, March 16, 2011			Sheet 1 of 1



DG



J6



CP33		16-02-0103	RTS
CP34		16-02-0103	TXD
CP30		16-02-0103	RXD
CP32		16-02-0103	CTS
CP31		16-02-0103	GND

VMINK16FCR

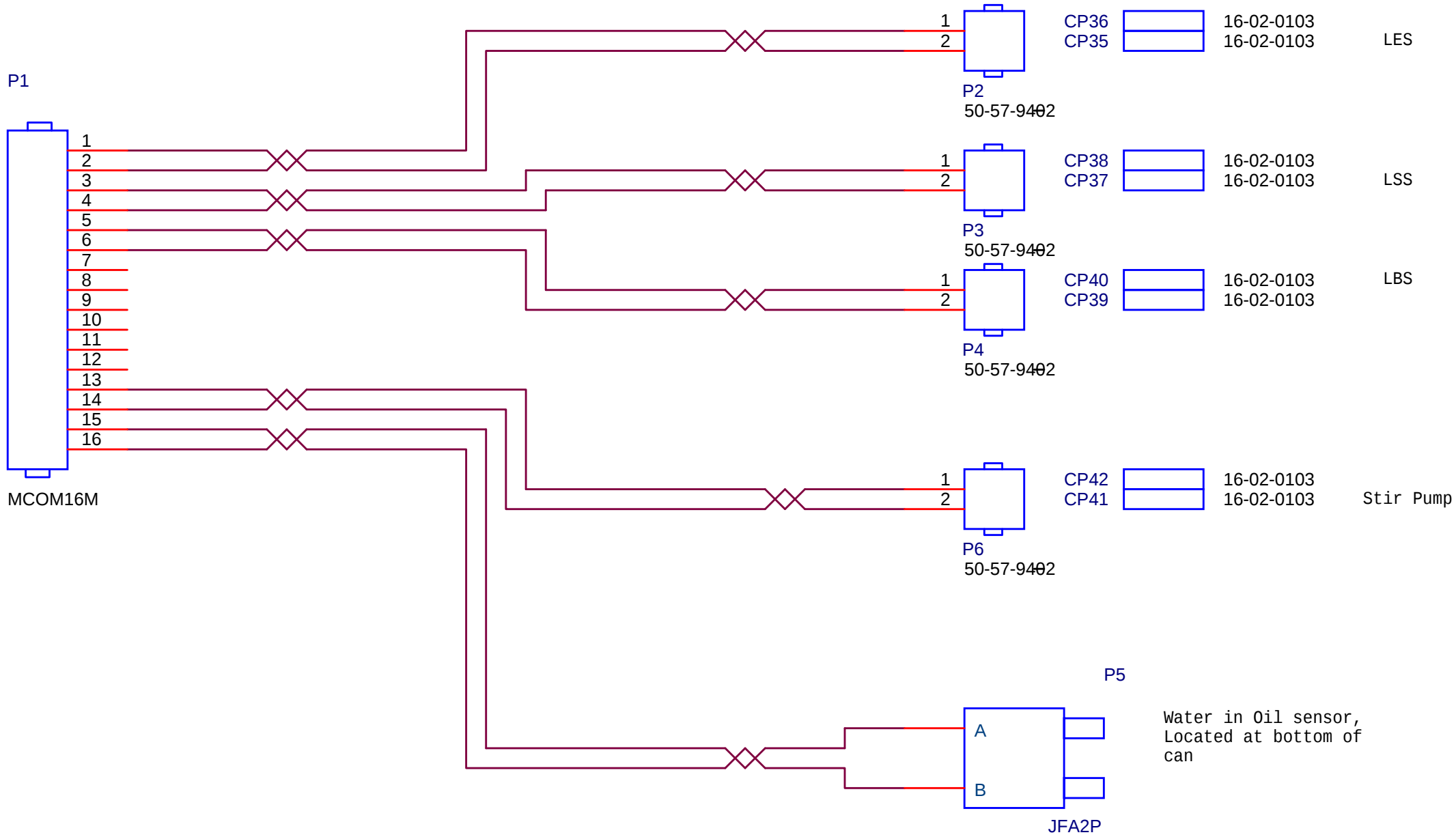
All wires #22 awg white, with pin number labels



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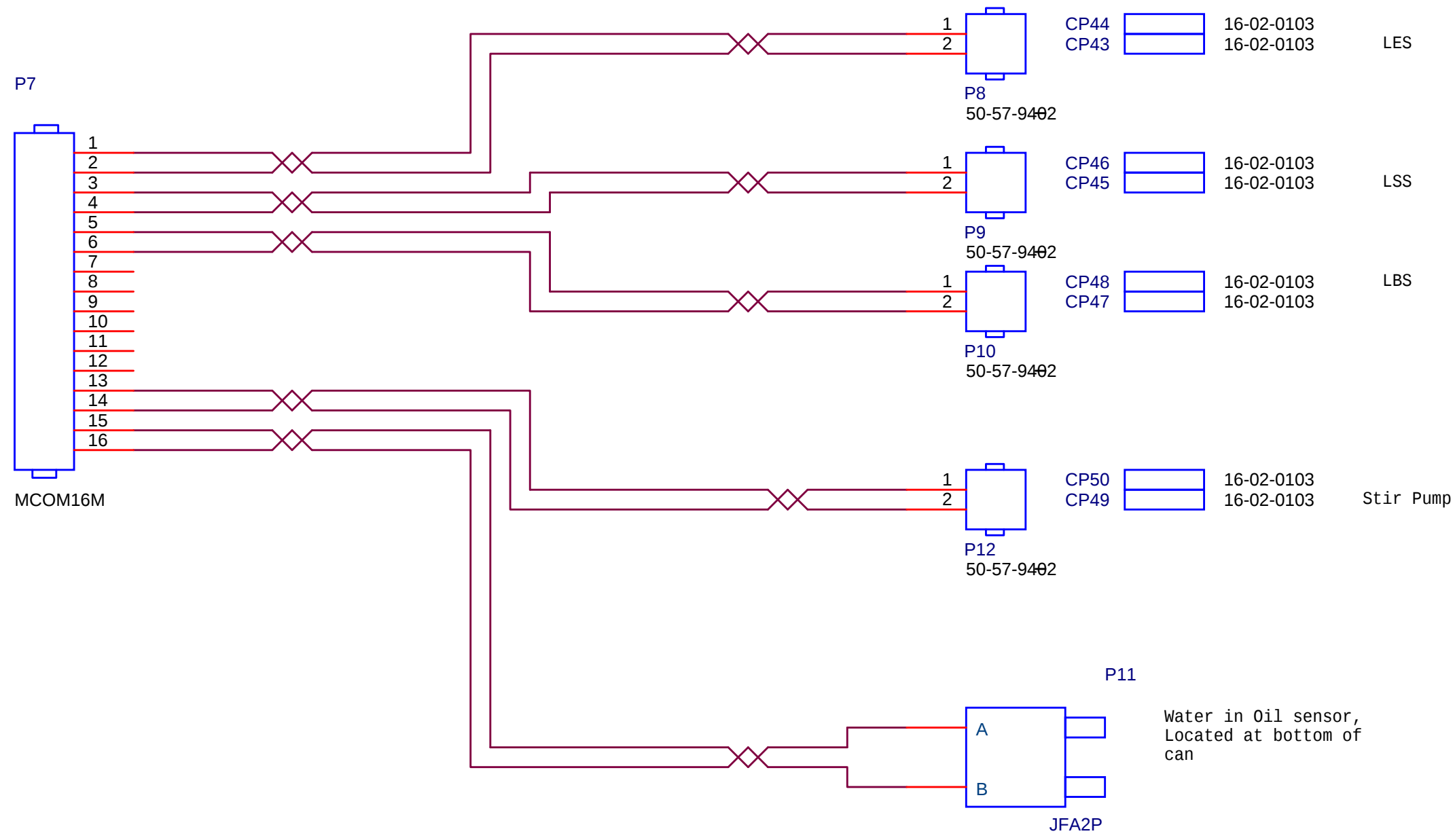
Title	Project
External Sampler Harness	ESP

Engineer	Size	Document Number	Part Number	Project File	Rev
Stensen	A	<Doc>	<Part Number>	dwsm4km.opj	0.0
Designer	Date:		Sheet 1 of 1		
<Designer>	Wednesday, March 16, 2011				



All wires #22 awg white

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title Sample Can Oil Harness		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number WH44	Project File dwsm4km.opj	Rev 0.0
Designer <Designer>		Date: Wednesday, March 16, 2011			
			Sheet 1 of 1		



All wires #22 awg white

		Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039			
		Title Resample Can Oil Harness		Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number WH45	Project File dwsn4km.opj	Rev 0.0
Designer <Designer>		Date: Wednesday, March 16, 2011			
		Sheet 1 of 1			

P?



MINK5FCRL

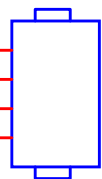
1	#16awg Red	VP+
2	#16awg Black	PR
3	#18awg Red	
4	#18awg Black	
5	#18awg White	

To HPP Picccoloservo Drive

Not connected

DWSM Resample Dwarf

P13



39-01-4040

CP53	
CP54	
CP52	
CP51	

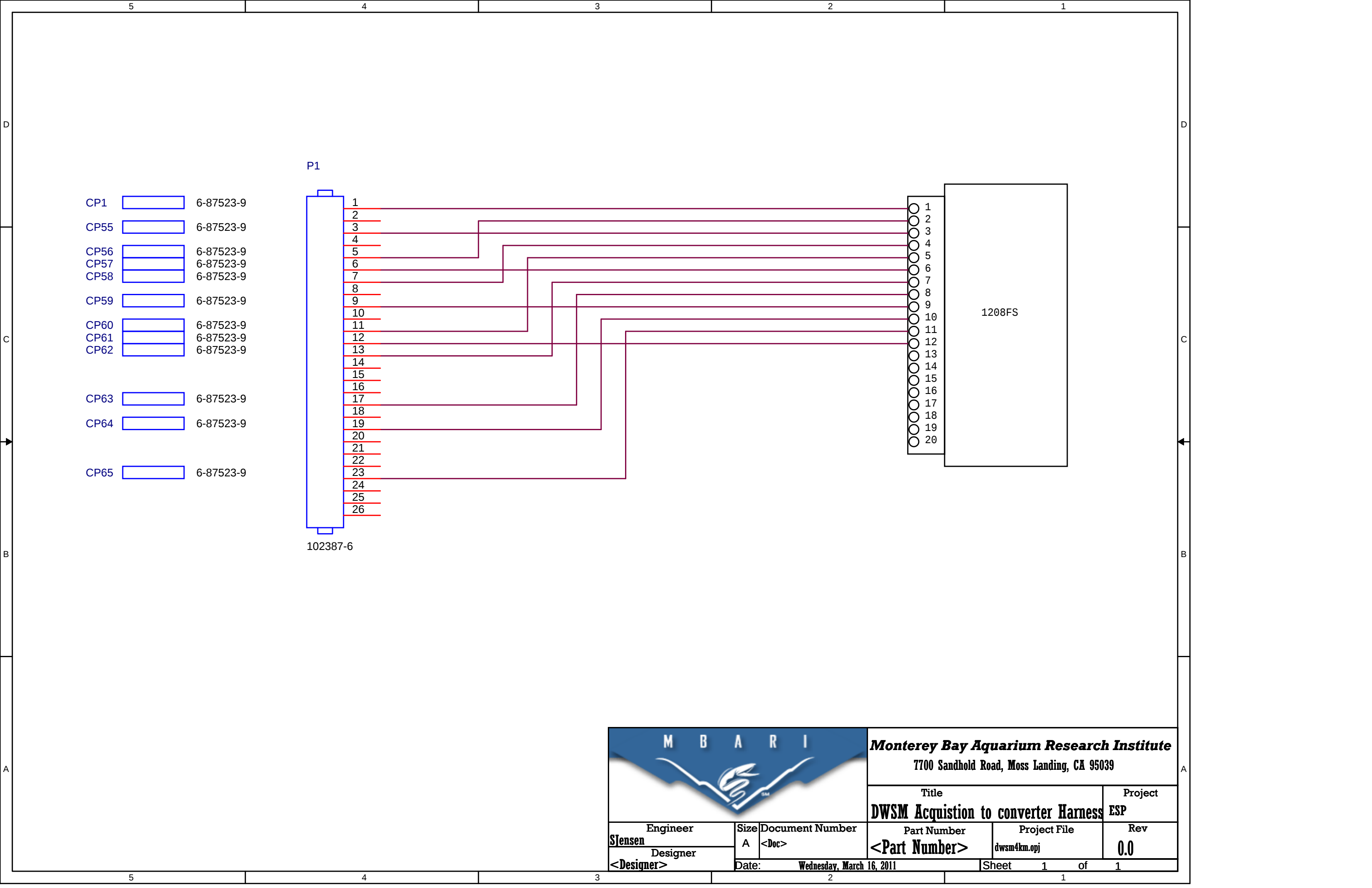
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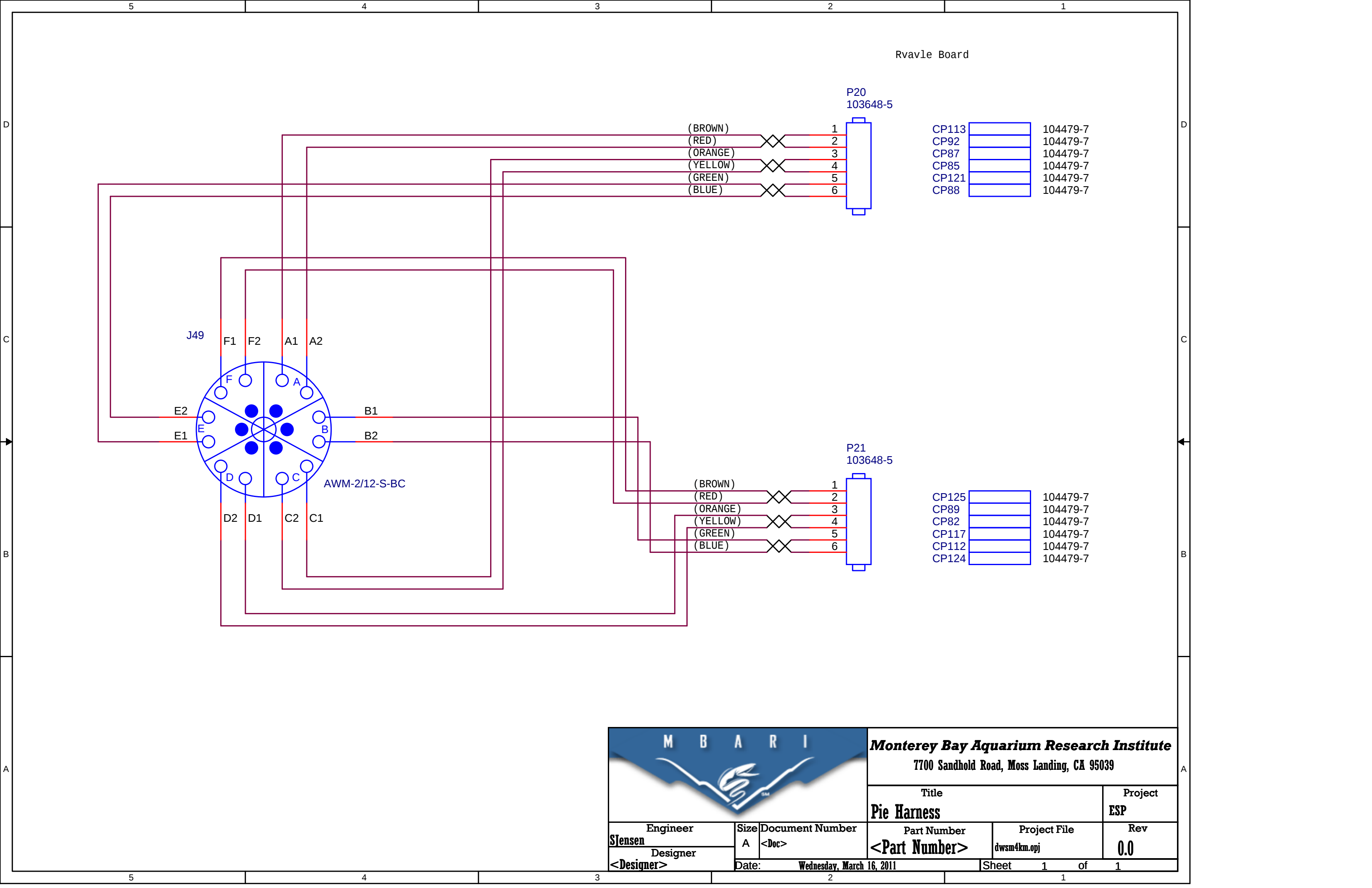
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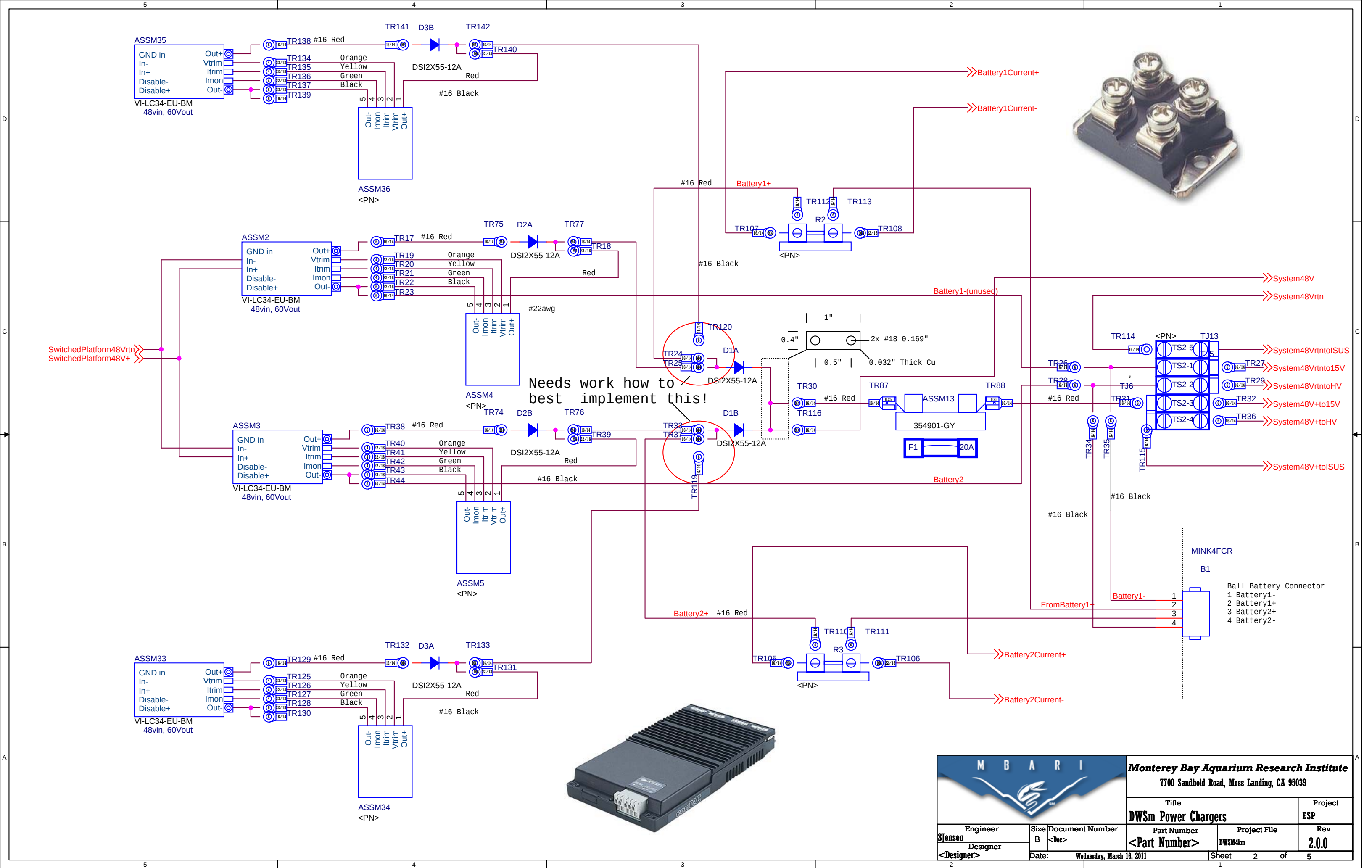
Title DWSM Resample Power		Project ESP
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Engineer Slensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj	Rev 0.0
Designer <Designer>		Date: Wednesday, March 16, 2011	Sheet 1 of 1		



Monterey Bay Aquarium Research Institute 7700 Sandhold Road, Moss Landing, CA 95039				
Title DWSM Acquisition to converter Harness			Project ESP	
Engineer Stensen	Size A	Document Number <Doc>	Part Number <Part Number>	Project File dwsm4km.opj
Designer <Designer>	Date: Wednesday, March 16, 2011		Sheet 1 of 1	Rev 0.0





Needs work how to
best implement this!



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Engineer		Size B	Document Number <Doc>	Part Number		Project File		Rev	
SJensen				<Part Number>		DWSM4km		2.0.0	
Designer			Date: Wednesday, March 16, 2011			Sheet 2 of 5			
<Designer>									

