DARK ENERGY
SURVEY

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

DES CRATE WIRING DOCUMENTATION REVISION 3.O V2

TODD MOORE
UNIVERSITY OF ILLINOIS

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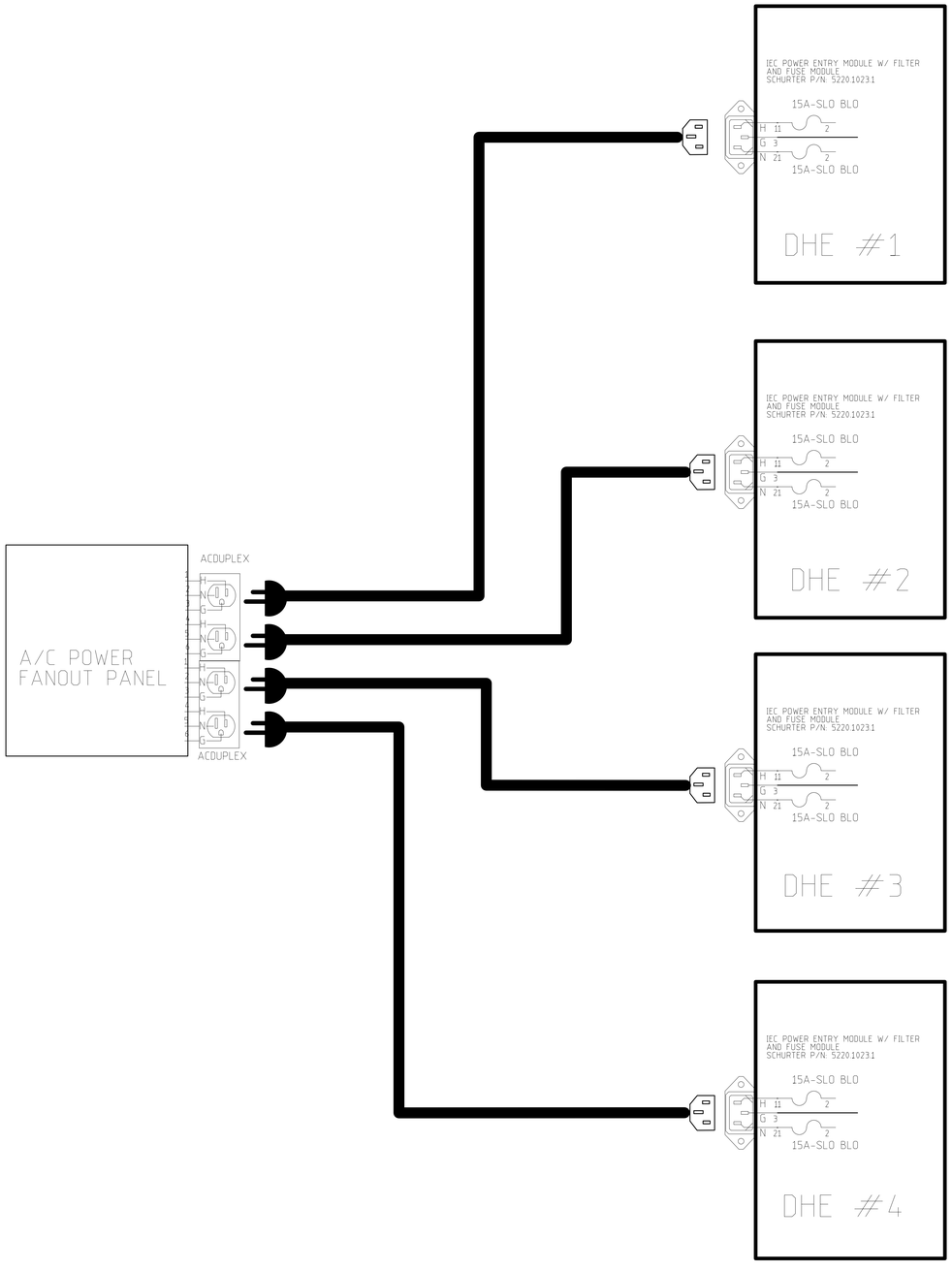
A/C POWER FANOUT TO DHE CRATES

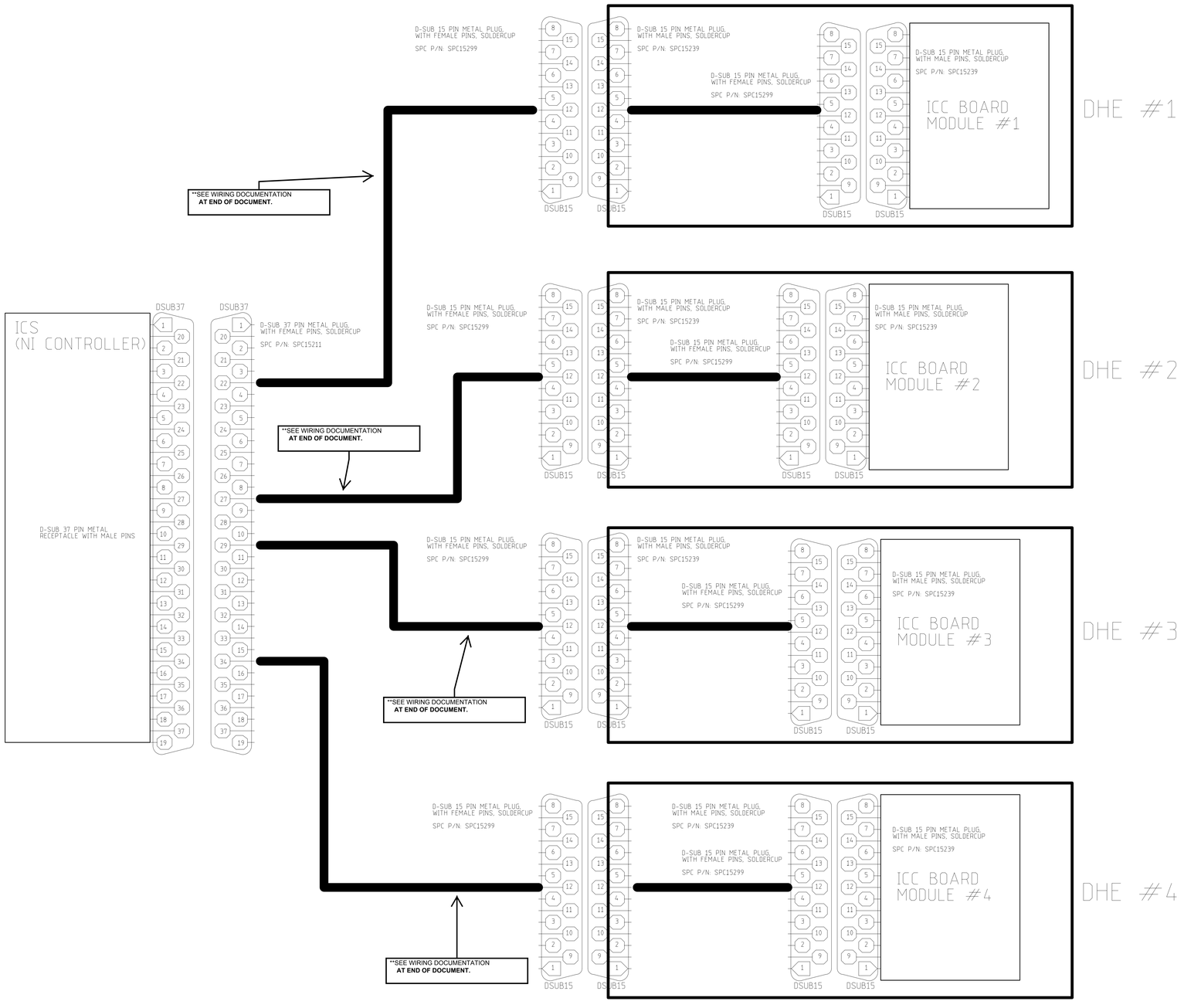


PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	COPY OF DRAWING NO.:	DESIGNED BY: T.MOORE	DATE DESIGNED: 4.25.10	USED ON:	TITLE: A/C POWER FANOUT TO DHE CRATES	FILE:	DRAWING NO.:	REV.: V2	DATE LAST REVISED: 6.17.10

HEPG SIZE B

ICS TO ICC BOARD MODULE WIRING



PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	COPY OF DRAWING NO.:	DESIGNED BY: T.MOORE	DATE DESIGNED: 4.6.09	USED ON:	TITLE: ICS TO ICC BOARD MODULE WIRING	FILE:	DRAWING NO.:	REV.: V2 / DATE LAST REVISED: 6.17.10

HEPG | SIZE B

DES TYPE 1 PRODUCTION CRATE WIRING

NOTES: SEE DES Crate Cable Connections_Type1&2.xls FOR INFORMATION ABOUT MAKING CABLES FOR THE DES CRATE.

SEE Prod-ICC Board Connector Connections Type1&2.xls FOR INFORMATION TO MAKE ICC BOARD MODULE.

SEE Prod-Power Supply Module Connections Type1&2.xls FOR INFORMATION FOR MAKING DES CRATE POWER SUPPLY MODULE.

SEE Prod-Cooling Fan Plenum Connections Type1&2.xls FOR INFORMATION TO MAKE COOLING FAN LOAD BOARD PLENUMS.

* ALL METAL EMI SHIELDING IS MECHANICALLY & ELECTRICALLY CONNECTED TO THE CRATE METAL, WHICH IS @ EARTH GROUND THROUGH IEC POWER CORD (A).

** THE POWER SUPPLIES ARE DIRECTLY CONNECTED TO THE CRATE METAL AND THUS GET THEIR EARTH GROUND DIRECTLY THROUGH THE CRATE METAL.

LF SERIES 3 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF07WBP-3P

LF SERIES 3 PIN CIR RECEPTACLE W/ FEMALE PINS — FAN POWER
HIROSE P/N LF07WBR-3S

LF SERIES 4 PIN CIR RECEPTACLE W/ FEMALE PINS — ICC POWER
HIROSE P/N LF10WBR-4S

DC POWER SUPPLY MODULE

FAN POWER — LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N LF07WBR-3S

A/C IN — LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N LF07WBP-3P

LF SERIES 3 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N LF07WBP-3S

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

(C) FAN POWER [ORANGE]

(D) ICC POWER [YELLOW]

SIGNAL	WIRE COLOR	P. MOD. END	ICC BOARD END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2
-12VDC_RTN	GREEN	3	3
-12VDC	WHITE	4	4

SIGNAL	WIRE COLOR	VICOR P. MODULE END1	END2
HOT	BLACK	1	1
NEUTRAL	WHITE	2	2

(B) A/C FANOUT TO POWER SUPPLIES [WHITE]

(C) FAN POWER [GREY]

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

LEFT FAN PLENUM

LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF07WBR-3P

LF SERIES 3 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N LF07WBP-3S

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N LF10WBR-12S

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF10WBP-12P

FAN#5

FAN#6

FAN#7

FAN#8

DC OUT

P/G (X7)

4 PIN INDUSTRIAL CONNECTOR (X7):
MOLEX P/N 39-01-0043 (HOUSING),
30-00-0032 (TERMINALS)

VICOR POWER SUPPLY

A/C IN — GREEN, WHITE, BLACK

A/C FANOUT — LF SERIES 3 PIN CIR RECEPTACLE W/ FEMALE PINS, HIROSE P/N: LF07WBR-3S

A/C IN — IEC POWER ENTRY MODULE W/ FILTER TYCO P/N 1SSRB8-R

VICOR FAN — LF SERIES 4 PIN CIR RECEPTACLE W/ MALE PINS, HIROSE P/N LF10WBR-4P

ENABLE/DISABLE — LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS, HIROSE P/N: LF10WBR-12S

LF SERIES 3 PIN CIR PLUG W/ MALE PINS
HIROSE P/N: LF07WBP-3P

LF SERIES 4 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N LF10WBP-4S

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF10WBP-12P

RIGHT FAN PLENUM

LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF07WBR-3P

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-12S

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N: LF10WBP-12P

FAN#1

FAN#2

FAN#3

FAN#4

DC IN

FILTER BOX MODULE

VMONITOR OUT — D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP, SPC P/N: SPC15299

DSUB25 DSUB25

FILTERED DC OUT

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

SIGNAL	WIRE COLOR	VICOR E/D END	ICC BOARD END14
Slot1 E/D	GREEN/BLK	1	1
Slot2 E/D	BROWN/BLK	2	2
Slot3 E/D	ORANGE/BLK	3	3
Slot4 E/D	BLK/ORANGE	4	4
Slot5 E/D	YELLOW/BLK	5	5
Slot6 E/D	BLK/YELLOW	6	6
Slot7 E/D	BLUE/BLK	7	7
Slot8 E/D	BLK/BLUE	8	8
Vcc-In	RED/BLK	9	9
Rtn	BLK/RED	10	10
A/C Power OK	BLK/WHITE	11	11
Gen Shtdwn	WHITE/BLK	12	12

SIGNAL	WIRE COLOR	VICOR FAN END	ICC BOARD END
Anode	RED	1	1
Cathode	BLACK	2	2
Collector	WHITE	3	3
Emmitter	GREEN	4	4

(H) VICOR ENABLE/ DISABLE [BLUE]

ICC BOARD MODULE

DC IN — LF SERIES 4 PIN CIR RECEPTACLE W/ MALE PINS, HIROSE P/N LF10WBR-4P

POWER GOOD — LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS, HIROSE P/N LF10WBR-12P

FAN SIG 5-8 — LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS, HIROSE P/N LF10WBR-12S

ICS IN — D-SUB 15 PIN METAL PLUG, WITH MALE PINS, SOLDERCUP, SPC P/N: SPC15323

ENABLE/DISABLE — LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS, HIROSE P/N LF10WBR-12P

VICOR FAN — LF SERIES 4 PIN CIR RECEPTACLE W/ FEMALE PINS, HIROSE P/N LF10WBR-4S

FAN SIG 1-4 — LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS, HIROSE P/N LF10WBR-12S

VMONITOR IN — 25 PIN D-SUB PLUG W/ MALE PINS, SPC P/N: SPC15323

LF SERIES 4 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N LF10WBP-4S

LF SERIES 12 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N LF10WBP-12S

LF SERIES 4 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF10WBP-4P

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF10WBP-12P

(G) VICOR FAN RPM [VIOLET]

(E) FAN RPM SIGNALS [GREEN]

ANALOG & DIGITAL BACKPLANE

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR ICC BOARD END	END

+5vd ('SHUTDOWN)	BLK/RED	1	1
+5vdRtn ('SHUTDOWN_R)	RED/BLK	14	14
+3.3vd (P3_3VDmon)	BLK/WHT	2	2
+3.3vdRtn (P3)3VDRmon)	WHT/BLK	15	15
+5va (P5VAmon)	BLK/GRN	3	3
+5vaRtn (P5VARmon)	GRN/BLK	16	16
-5vaRtn (M5VARmon)	BLK/BLU	4	4
-5va (M5VAmon)	BLU/BLK	17	17
+15va (P15VAmon)	BLK/YELLOW	5	5
+15vaRtn (P15VARmon)	YELLOW/BLK	6	6
-15va (M15VAmon)	BLK/BRWN	19	19
-15vaRtn (M15VARmon)	BRWN/BLK	20	20
-28va (M28VAmon)	BLK/ORANGE	10	10
-28vaRtn (M2815VRmon)	ORANGE/BLK	23	23
+48va (P48VAmon)	RED/WHT	21	21
+48vaRtn (P4815VRmon)	WHT/RED	9	9
Vicor Therm Sw	RED/BRWN	25	25

I-DAQ CABLE

(J) *** POWER GOOD CABLE [BROWN]

(E) FAN RPM SIGNALS [RED]

J-DAQ CRATE

SIGNAL	WIRE COLOR	END	ICC BOARD VOLTAGES	VICOR WIRE COLOR	POWER GOOD ENDS
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	+5vd Vcc	RED	J3-1:Pin 4
			+3.3vd Vcc	RED	J3-2: Pin 4
			-28va Vcc	RED	J3-4: Pin 4
			-15va Vcc	RED	J3-5: Pin 4
			+15va Vcc	RED	J3-6: Pin 4
			-5va Vcc	RED	J3-7: Pin 4
			+5va Vcc	RED	J3-8: Pin 4
Digital PG (was Slot2 PG)	GREEN	3	+5vd PG	ORANGE	J3-1:Pin 3
			+3.3vd PG	YELLOW	J3-2:Pin 3
Analog PG (was Slot2 Vcc)	WHITE	4	-28va PG	GREEN	J3-4:Pin 3
			-15va PG	BLUE	J3-5:Pin 3
			+15va PG	VIOLET	J3-6:Pin 3
			-5va PG	BROWN	J3-7:Pin 3
			+5va PG	WHITE	J3-8:Pin 3
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	+5vd Rtn	BLACK	J3-1:Pin 1
			+3.3vd Rtn	BLACK	J3-2:Pin 1
			-28va Rtn	BLACK	J3-4:Pin 1
			-15va Rtn	BLACK	J3-5:Pin 1
			+15va Rtn	BLACK	J3-6:Pin 1
			-5va Rtn	BLACK	J3-7:Pin 1
			+5va Rtn	BLACK	J3-8:Pin 1

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N LF10WBP-12P

D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

(I-DAQ) (I-HTR) MONITORED VOLTAGES

IEC POWER CORD, 90° LONG
QUALTEK P/N: 312021-01

IEC POWER ENTRY MODULE W/ FILTER AND FUSE MODULE
SCHURTER P/N: 5220.10231

BLACK — 15A-SLO BLO — WHITE — GREEN

(A) A/C FEED TO TOP COVER

A/C FEED

D-SUB 15 PIN METAL PLUG, WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15239

D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

DSUB15 DSUB15

D-SUB 37 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15211

DSUB37 DSUB37

D-SUB 37 PIN METAL RECEPTACLE WITH MALE PINS

ICS (NI CONTROLLER)

SIGNAL	WIRE COLOR	TOP COVER END	ICC BOARD END
Ok_Pwr Up In	RED/BLK	1	1
Ok_Pwr Up Rtn	BLK/RED	2	2
DHE Sys OK out	WHT/BLK	3	3
DHE Sys OK Rtn	BLK/WHT	4	4
ICC SDO	GRN/BLK	5	5
ICC SDO Rtn	BLK/GRN	6	6
ICC SDI	BLU/BLK	7	7
ICC SDI Rtn	BLK/BLU	8	8
* SPI_CS	BRWN/BLK	9	9
* SPI_CS_Rtn	BLK/BRWN	10	10
SCLK IN Rtn	BLK/YELLOW	11	11
SCLK IN	YELLOW/BLK	12	12
Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	13	13
Ok_Pwr_Up_ECO	ORANGE/BLK	14	14

(F) ICS CRATE MONITOR CABLE TO TOP COVER

D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

TOP COVER

**SEE WIRING DOCUMENTATION AT END OF DOCUMENT.

DAQ CRATE

PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	NOTES:	DESIGNED BY: T.MOORE	DATE DESIGNED: 4.6.09	USED ON:	TITLE: DES PRODUCTION CRATE WIRING - TYPE 1	FILE:	DRAWING NO: PROD_CRATE_WIRING_REV2.1	REV: V2	DATE LAST REVISED: 6.17.10

HEPG | SIZE C

DES TYPE 2 PRODUCTION CRATE WIRING

NOTES: SEE DES Crate Cable Connections_Type1&2.xls FOR INFORMATION ABOUT MAKING CABLES FOR THE DES CRATE.

SEE Prod-ICC Board Connector Connections Type1&2.xls FOR INFORMATION TO MAKE ICC BOARD MODULE.

SEE Prod-Power Supply Module Connections Type1&2.xls FOR INFORMATION FOR MAKING DES CRATE POWER SUPPLY MODULE.

SEE Prod-Cooling Fan Plenum Connections Type1&2.xls FOR INFORMATION TO MAKE COOLING FAN LOAD BOARD PLENUMS.

* ALL METAL EMI SHIELDING IS MECHANICALLY & ELECTRICALLY CONNECTED TO THE CRATE METAL, WHICH IS @ EARTH GROUND THROUGH IEC POWER CORD (A).

** THE POWER SUPPLIES ARE DIRECTLY CONNECTED TO THE CRATE METAL AND THUS GET THEIR EARTH GROUND DIRECTLY THROUGH THE CRATE METAL.

J-DAQ CRATE

SIGNAL	WIRE COLOR	END	ICC BOARD VOLTAGES	WIRE COLOR	VICOR CONVERTERPAC POWER GOOD ENDS
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	+5vd Vcc	RED	J3-1:Pin 4
			+3.3vd Vcc	RED	J3-2: Pin 4
			-28va Vcc	RED	J3-4: Pin 4
			-15va Vcc	RED	J3-5: Pin 4
			+15va Vcc	RED	J3-6: Pin 4
			-5va Vcc	RED	J3-7: Pin 4
			+5va Vcc	RED	J3-8: Pin 4
Digital PG (was Slot2 PG)	GREEN	3	+5vd PG	ORANGE	J3-1:Pin 3
			+3.3vd PG	YELLOW	J3-2:Pin 3
Analog PG (was Slot2 Vcc)	WHITE	4	-28va PG	GREEN	J3-4:Pin 3
			-15va PG	BLUE	J3-5:Pin 3
			+15va PG	VIOLET	J3-6:Pin 3
			-5va PG	BROWN	J3-7:Pin 3
			+5va PG	WHITE	J3-8:Pin 3
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	+5vd Rtn	BLACK	J3-1:Pin 1
			+3.3vd Rtn	BLACK	J3-2:Pin 1
			-28va Rtn	BLACK	J3-4:Pin 1
			-15va Rtn	BLACK	J3-5:Pin 1
			+15va Rtn	BLACK	J3-6:Pin 1
			-5va Rtn	BLACK	J3-7:Pin 1
			+5va Rtn	BLACK	J3-8:Pin 1

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

(C) FAN POWER [ORANGE]

(D) ICC POWER [YELLOW]

(B) A/C FANOUT TO POWER SUPPLIES [WHITE]

(C) FAN POWER [GREY]

SIGNAL	WIRE COLOR	VICOR P. MODULE END1	END2
HOT	BLACK	1	1
NEUTRAL	WHITE	2	2

I-DAQ CABLE

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR END	ICC BOARD END

+5vd ('SHUTDOWN)	BLK/RED	1	1
+5vdRtn ('SHUTDOWN_R)	RED/BLK	14	14
+3.3vd (P3_3Vdmon)	BLK/WHT	2	2
+3.3vdRtn (P3)3VDRmon)	WHT/BLK	15	15
+5va (P5VAmon)	BLK/GRN	3	3
+5vaRtn (P5VARmon)	GRN/BLK	16	16
-5vaRtn (M5VARmon)	BLK/BLU	4	4
-5va (M5VAmon)	BLU/BLK	17	17
+15va (P15VAmon)	BLK/YELLOW	5	5
+15vaRtn (P15VARmon)	YELLOW/BLK	6	6
-15va (M15VAmon)	BLK/BRWN	19	19
-15vaRtn (M15VARmon)	BRWN/BLK	20	20
-28va (M28VAmon)	BLK/ORANGE	10	10
-28vaRtn (M2815VRmon)	ORANGE/BLK	23	23
+48va (P48VAmon)	RED/WHT	21	21
+48vaRtn (P4815VRmon)	WHT/RED	9	9
Vicor Therm Sw	RED/BRWN	25	25

SIGNAL	WIRE COLOR	VICOR E/D END	ICC BOARD END14
Slot1 E/D	GREEN/BLK	1	1
Slot2 E/D	BROWN/BLK	2	2
Slot3 E/D	ORANGE/BLK	3	3
Slot4 E/D	BLK/ORANGE	4	4
Slot5 E/D	YELLOW/BLK	5	5
Slot6 E/D	BLK/YELLOW	6	6
Slot7 E/D	BLUE/BLK	7	7
Slot8 E/D	BLK/BLUE	8	8
Vcc-In	RED/BLK	9	9
Rtn	BLK/RED	10	10
A/C Power OK	BLK/WHITE	11	11
Gen Shtdwn	WHITE/BLK	12	12

(H) VICOR ENABLE/ DISABLE [BLUE]

SIGNAL	WIRE COLOR	ICC P. MOD. END	ICC BOARD END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2
+12VDC_RTN	GREEN	3	3
-12VDC	WHITE	4	4

SIGNAL	WIRE COLOR	VICOR FAN END	ICC BOARD END
Anode	RED	1	1
Cathode	BLACK	2	2
Collector	WHITE	3	3
Emmitter	GREEN	4	4

(G) VICOR FAN RPM [VIOLET]

(E) FAN RPM SIGNALS [GREEN]

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

(J) POWER GOOD CABLE [BROWN]

(E) FAN RPM SIGNALS [RED]

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

SIGNAL	WIRE COLOR	TOP COVER ICC BOARD END	END
Ok_Pwr Up In	RED/BLK	1	1
Ok_Pwr Up Rtn	BLK/RED	2	2
DHE Sys OK out	WHT/BLK	3	3
DHE Sys OK Rtn	BLK/WHT	4	4
ICC SDO	GRN/BLK	5	5
ICC SDO Rtn	BLK/GRN	6	6
ICC SDI	BLU/BLK	7	7
ICC SDI Rtn	BLK/BLU	8	8
* SPI_CS	BRWN/BLK	9	9
* SPI_CS_Rtn	BLK/BRWN	10	10
SCLK IN Rtn	BLK/YELLOW	11	11
SCLK IN	YELLOW/BLK	12	12
Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	13	13
Ok_Pwr_Up_ECO	ORANGE/BLK	14	14

(A) A/C FEED TO TOP COVER

(I-DAQ) (I-HTR) MONITORED VOLTAGES

(F) ICS CRATE MONITOR CABLE TO TOP COVER

**SEE WIRING DOCUMENTATION AT END OF DOCUMENT.

DAQ CRATE

PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	NOTES:	DESIGNED BY: T.MOORE	DATE DESIGNED: 4.6.09	USED ON:	TITLE: DES PRODUCTION CRATE WIRING - TYPE 2	FILE:	DRAWING NO.: PROD_CRATE_WIRING_REV2.1	REV: V2	DATE LAST REVISED: 6.17.10

HEPG SIZE C

DES TYPE 2 PRODUCTION CRATE WIRING

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SEE Prod-Power Supply Module Connections Type1&2.xls FOR INFORMATION FOR MAKING DES CRATE POWER SUPPLY MODULE.

SEE Prod-Cooling Fan Plenum Connections Type1&2.xls FOR INFORMATION TO MAKE COOLING FAN LOAD BOARD PLENUMS.

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SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

(C) FAN POWER [ORANGE]

(D) ICC POWER [YELLOW]

(B) A/C FANOUT TO POWER SUPPLIES [WHITE]

LF SERIES 3 PIN CIR PLUG W/ MALE PINS
HIROSE P/N: LF07WBP-3P

FAN POWER
LF SERIES 3 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF07WBR-3S

ICC POWER
LF SERIES 4 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-4S

DC POWER SUPPLY MODULE

FAN POWER
LF SERIES 3 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF07WBR-3S

A/C IN
LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF07WBP-3P

LF SERIES 3 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N: LF07WBP-3S

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

(C) FAN POWER [GREY]

J-HEATER CRATE

SIGNAL	WIRE COLOR	END	ICC BOARD CONVERTERPAC VOLTAGES	WIRE COLOR	VICOR POWER GOOD ENDS
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	+5vd Vcc	RED	J3-1:Pin 4
Digital PG (was Slot2 PG)	GREEN	3	+5vd PG	ORANGE	J3-1:Pin 3
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	+5vd Rtn	BLACK	J3-1:Pin 1

LEFT FAN PLENUM

FAN#1
FAN#2
FAN#3
FAN#4

LF SERIES 3 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF07WBR-3P

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-12S

LF SERIES 12 PIN CIR PLUG W/ MALE PINS
HIROSE P/N: LF10WBP-12P

LF SERIES 4 PIN CIR PLUG W/ FEMALE PINS
HIROSE P/N: LF10WBP-4S

VICOR POWER SUPPLY

A/C FANOUT — GREEN, WHITE, BLACK — A/C IN

A/C IN

VICOR FAN

ENABLE/DISABLE

VICOR DC OUT

P/G (X7)

SIGNAL	WIRE COLOR	VICOR P. MODULE END1	END2
HOT	BLACK	1	1
NEUTRAL	WHITE	2	2

4 PIN INDUSTRIAL CONNECTOR (X7)
MOLEX P/N: 39-01-0043 (HOUSING)
30-00-0031 (TERMINALS)

IEC POWER ENTRY MODULE W/ FILTER TYCO P/N: 1SSRB8-R

RIGHT FAN PLENUM

FAN#5
FAN#6
FAN#7
FAN#8

VMONITOR OUT
D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

FILTER BOX MODULE

VICOR DC IN

FILTERED VICOR DC OUT

DSUB25

D-SUB 15 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

SIGNAL	WIRE COLOR	VICOR E/D END	ICC BOARD END14
Slot1 E/D	GREEN/BLK	1	1
Slot2 E/D	BROWN/BLK	2	2
Slot3 E/D	ORANGE/BLK	3	3
Slot4 E/D	BLK/ORANGE	4	4
Slot5 E/D	YELLOW/BLK	5	5
Slot6 E/D	BLK/YELLOW	6	6
Slot7 E/D	BLUE/BLK	7	7
Slot8 E/D	BLK/BLUE	8	8
Vcc-In	RED/BLK	9	9
Rtn	BLK/RED	10	10
A/C Power OK	BLK/WHITE	11	11
Gen Shtdwn	WHITE/BLK	12	12

(H) VICOR ENABLE/ DISABLE [BLUE]

SIGNAL	WIRE COLOR	ICC P. MOD. END	ICC BOARD END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2
-12VDC_RTN	GREEN	3	3
-12VDC	WHITE	4	4

I-HEATER CABLE

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR END	ICC BOARD END

+5va (n_SHUTDOWN)	RED/BLK	3	3
+5vaRtn (n_SHUTDOWN_R)	BLK/RED	16	16
+15va (P15VHmon)	GRN/BLK	18	5
+15vaRtn (P15VARmon)	BLK/GRN	6	6
-15va (M15VHmon)	BLU/BLK	7	19
-15vaRtn (M15VARmon)	BLK/BLU	20	20
-28va (M15VHCmon)	YELLOW/BLK	22	10
-28vaRtn (M2815VRmon)	BLK/YELLOW	23	23
+48va (P15VHCmon)	ORANGE/BLK	8	21
+48vaRtn (P4815VRmon)	BLK/ORANGE	9	9
Vicor Therm Sw	RED/BRWN	25	25
Vicor Therm Sw Rtn	BRWN/RED	13	13

ICC BOARD MODULE

ENABLE/DISABLE
VICOR FAN
FAN SIG 1-4
VMONITOR IN
DC IN
POWER GOOD
FAN SIG 5-8
ICS IN

LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF10WBR-12P

LF SERIES 4 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF10WBR-4P

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-12S

LF SERIES 4 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-4S

25 PIN D-SUB PLUG W/ MALE PINS
SPC P/N: SPC15323

D-SUB 15 PIN METAL PLUG WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15323

D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

SIGNAL	WIRE COLOR	VICOR FAN ICC BOARD END	END
Anode	RED	1	1
Cathode	BLACK	2	2
Collector	WHITE	3	3
Emmitter	GREEN	4	4

(G) VICOR FAN RPM [VIOLET]

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

(E) FAN RPM SIGNALS [GREEN]

(J) POWER GOOD CABLE [BROWN]

(E) FAN RPM SIGNALS [RED]

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

ANALOG & DIGITAL BACKPLANE

SIGNAL	WIRE COLOR	TOP COVER ICC BOARD END	END
Ok_Pwr Up In	RED/BLK	1	1
Ok_Pwr Up Rtn	BLK/RED	2	2
DHE Sys OK out	WHT/BLK	3	3
DHE Sys OK Rtn	BLK/WHT	4	4
ICC SDO	GRN/BLK	5	5
ICC SDO Rtn	BLK/GRN	6	6
ICC SDI	BLU/BLK	7	7
ICC SDI Rtn	BLK/BLU	8	8
* SPI_CS	BRWN/BLK	9	9
* SPI_CS_Rtn	BLK/BRWN	10	10
SCLK IN Rtn	BLK/YELLOW	11	11
SCLK IN	YELLOW/BLK	12	12
Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	13	13
Ok_Pwr_Up_ECO	ORANGE/BLK	14	14

TOP COVER

ICS (NI CONTROLLER)

D-SUB 37 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15211

D-SUB 37 PIN METAL RECEPTACLE WITH MALE PINS

DSUB37

A/C FEED

IEC POWER ENTRY MODULE W/ FILTER AND FUSE HOLDER
SCHURTER P/N: 5220.10231

BLACK — 15A-SLO BLO
WHITE — 15A-SLO BLO
GREEN

(A) A/C FEED TO TOP COVER

(I-DAQ) (I-HTR) MONITORED VOLTAGES

(F) ICS CRATE MONITOR CABLE TO TOP COVER

D-SUB 15 PIN METAL PLUG, WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

D-SUB 15 PIN METAL PLUG, WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15239

DSUB15

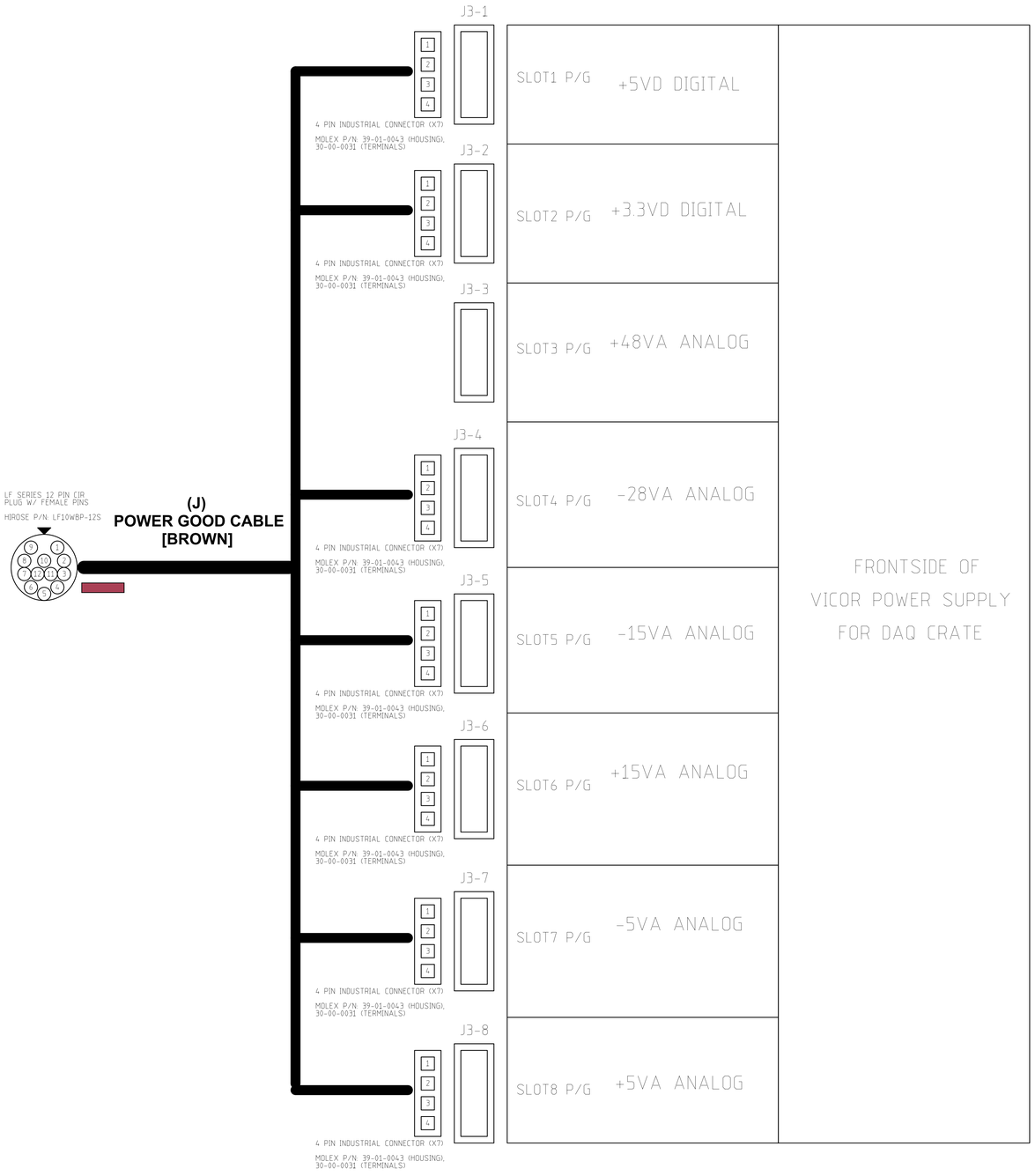
**SEE WIRING DOCUMENTATION AT END OF DOCUMENT.

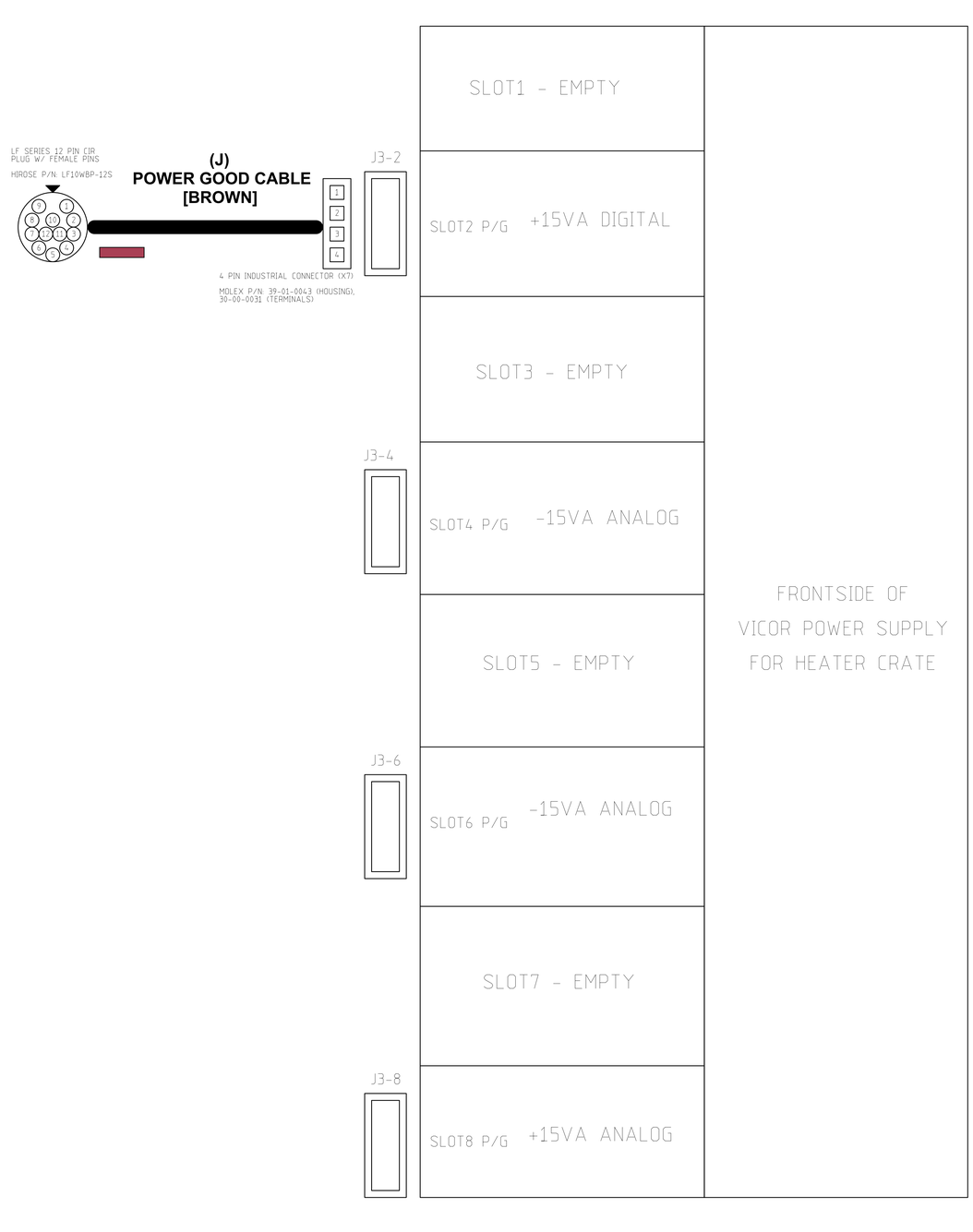
HEATER CRATE

PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	NOTES:	DESIGNED BY: T.MOORE	DATE DESIGNED: 4.6.09	USED ON:	TITLE: DES PRODUCTION CRATE WIRING - TYPE 2	FILE:	DRAWING NO: PROD_CRATE_WIRING_REV2.1	REV: V2	DATE LAST REVISED: 6.17.10

HEPG | SIZE: C

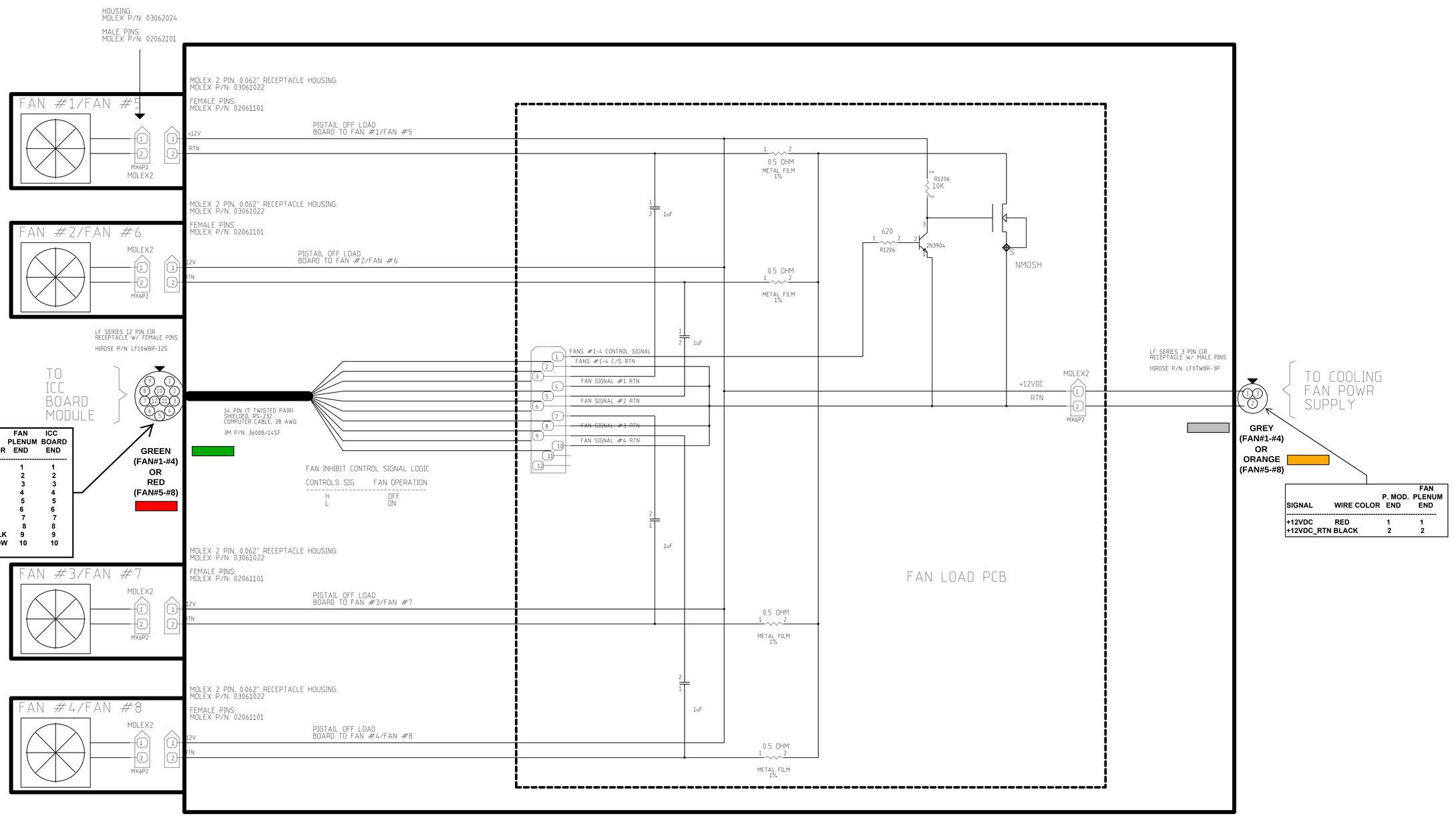




PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	COPY OF DRAWING NO.:	DESIGNED BY: T.MOORE	DATE DESIGNED: 5.5.10	USED ON:	TITLE: FRONT SIDE OF VICOR SUPPLY SHOWING POWER GOOD SIGNALS	FILE:	DRAWING NO.:	REV.: V2 / DATE LAST REVISED: 6.17.10

HEPG SIZE B



SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

NOTES: SEE Prod-Cooling Fan Plenum Connections Type1&2.xls FOR INFORMATION TO MAKE COOLING FAN LOAD BOARD PLENUMS.

* ALL METAL EMI SHIELDING IS MECHANICALLY & ELECTRICALLY CONNECTED TO THE CRATE METAL, WHICH IS @ EARTH GROUND THROUGH IEC POWER CORD (A).

COOLING FAN PLENUM

PROD_CRATE_WIRING_REV3.0

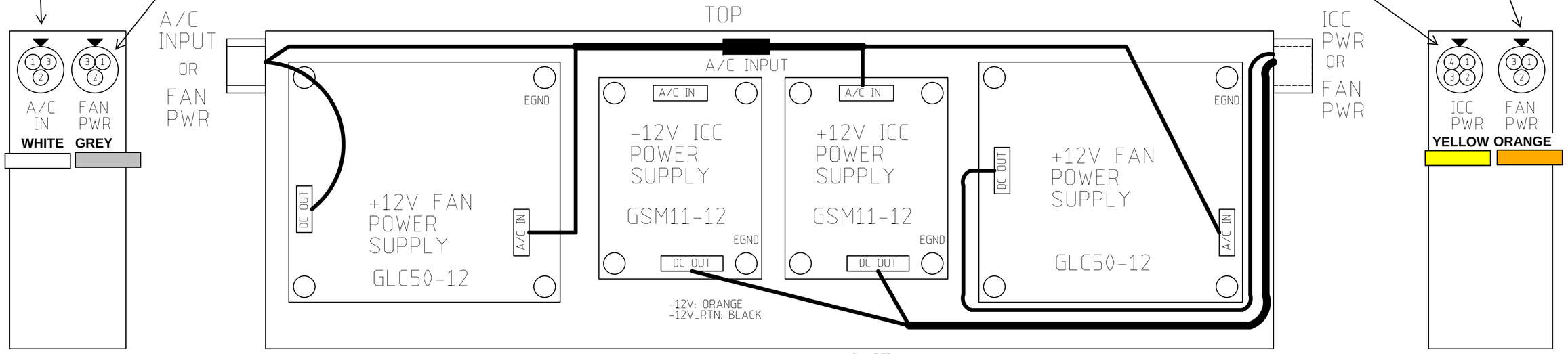
HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	COPY OF DRAWING NO.:	DESIGNED BY: T.MOORE	DATE DESIGNED: 11.13.08	USED ON:	TITLE: COOLING FAN PLENUM FOR DES CRATES TYPES 1 & 2	FILE:	DRAWING NO.:	REV.: V2 / DATE LAST REVISED: 6.17.10

SIGNAL	WIRE COLOR	VICOR P. MODULE END1	END2
HOT	BLACK	1	1
NEUTRAL	WHITE	2	2

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2

SIGNAL	WIRE COLOR	P. MOD. END	ICC BOARD END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2
-12VDC_RTN	GREEN	3	3
-12VDC	WHITE	4	4

SIGNAL	WIRE COLOR	P. MOD. END	FAN PLENUM END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2



NOTE: SEE Prod-Power Supply Module Connections Type1&2.xls

PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	DESIGNED BY: T.MOORE	DATE DESIGNED: 9.1.09	USED ON:	TITLE: POWER SUPPLIES WIRING LAYOUT DIAGRAM	FILE:	DRAWING NO.:	REV.: V2 / DATE REVISED: 6.17.10

HEPG SIZE A

J-DAQ CRATE

SIGNAL	WIRE COLOR	ICC BOARD END	CONVERTERPAC VOLTAGES	VICOR WIRE COLOR	POWER GOOD ENDS
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	+5vd Vcc	RED	J3-1:Pin 4
			+3.3vd Vcc	RED	J3-2: Pin 4
			-28va Vcc	RED	J3-4: Pin 4
			-15va Vcc	RED	J3-5: Pin 4
			+15va Vcc	RED	J3-6: Pin 4
			-5va Vcc	RED	J3-7: Pin 4
			+5va Vcc	RED	J3-8: Pin 4
Digital PG (was Slot2 PG)	GREEN	3	+5vd PG	ORANGE	J3-1:Pin 3
			+3.3vd PG	YELLOW	J3-2:Pin 3
Analog PG (was Slot2 Vcc)	WHITE	4	-28va PG	GREEN	J3-4:Pin 3
			-15va PG	BLUE	J3-5:Pin 3
			+15va PG	VIOLET	J3-6:Pin 3
			-5va PG	BROWN	J3-7:Pin 3
			+5va PG	WHITE	J3-8:Pin 3
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	+5vd Rtn	BLACK	J3-1:Pin 1
			+3.3vd Rtn	BLACK	J3-2:Pin 1
			-28va Rtn	BLACK	J3-4:Pin 1
			-15va Rtn	BLACK	J3-5:Pin 1
			+15va Rtn	BLACK	J3-6:Pin 1
			-5va Rtn	BLACK	J3-7:Pin 1
			+5va Rtn	BLACK	J3-8:Pin 1

J-HTR CRATE

SIGNAL	WIRE COLOR	ICC BOARD END	VICOR POWER GOOD ENDS
Digital PG (was Slot2 PG)	GREEN	3	J3-2:Pin 3
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	J3-2:Pin 4
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	J3-2:Pin 1

SIGNAL	WIRE COLOR	ICC P. MOD. END	BOARD END
+12VDC	RED	1	1
+12VDC_RTN	BLACK	2	2
-12VDC_RTN	GREEN	3	3
-12VDC	WHITE	4	4

LF SERIES 4 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF10WBR-4P

YELLOW

P103 DC IN

LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF10WBR-12P

BROWN

P104 POWER GOOD

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-12S

RED

P111 FAN SIG 5-8

D-SUB 15 PIN METAL PLUG, WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15323

DSUB15

P105 ICS IN

P102 ENABLE/DISABLE

LF SERIES 12 PIN CIR RECEPTACLE W/ MALE PINS
HIROSE P/N: LF10WBR-12P

BLUE

P109 VICOR FAN

LF SERIES 4 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-4S

VIOLET

P110 FAN SIG 1-4

LF SERIES 12 PIN CIR RECEPTACLE W/ FEMALE PINS
HIROSE P/N: LF10WBR-12S

GREEN

P119 VICOR THERMAL SWITCH

P101 VMONITOR IN

25 PIN D-SUB PLUG W/ MALE PINS
SPC P/N: SPC15323

DSUB25

CRATE THERM SW

P118

ICC BOARD MODULE

SIGNAL	WIRE COLOR	VICOR E/D END	ICC BOARD END14
Slot1 E/D	GREEN/BLK	1	1
Slot2 E/D	BROWN/BLK	2	2
Slot3 E/D	ORANGE/BLK	3	3
Slot4 E/D	BLK/ORANGE	4	4
Slot5 E/D	YELLOW/BLK	5	5
Slot6 E/D	BLK/YELLOW	6	6
Slot7 E/D	BLUE/BLK	7	7
Slot8 E/D	BLK/BLUE	8	8
Vcc-In	RED/BLK	9	9
Rtn	BLK/RED	10	10
A/C Power OK	BLK/WHITE	11	11
Gen Shtdwn	WHITE/BLK	12	12

SIGNAL	WIRE COLOR	VICOR FAN END	ICC BOARD END
Anode	RED	1	1
Cathode	BLACK	2	2
Collector	WHITE	3	3
Emmitter	GREEN	4	4

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

SIGNAL	WIRE COLOR	FAN PLENUM END	ICC BOARD END
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8
FAN #1-8 CNTRL	YELLOW/BLK	9	9
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10

SIGNAL	WIRE COLOR	TOP COVER END	ICC BOARD END
Ok_Pwr Up In	RED/BLK	1	1
Ok_Pwr Up Rtn	BLK/RED	2	2
DHE Sys OK out	WHT/BLK	3	3
DHE Sys OK Rtn	BLK/WHT	4	4
ICC SDO	GRN/BLK	5	5
ICC SDO Rtn	BLK/GRN	6	6
ICC SDI	BLU/BLK	7	7
ICC SDI Rtn	BLK/BLU	8	8
* SPI_CS	BRWN/BLK	9	9
* SPI_CS_Rtn	BLK/BRWN	10	10
SCLK IN Rtn	BLK/YELLOW	11	11
SCLK IN	YELLOW/BLK	12	12
Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	13	13
Ok_Pwr_Up_ECO	ORANGE/BLK	14	14

I-DAQ CABLE

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR END	ICC BOARD END

+5vd ('SHUTDOWN)	BLK/RED	1	1
+5vdRtn ('SHUTDOWN_R)	RED/BLK	14	14
+3.3vd (P3_3VDmon)	BLK/WHT	2	2
+3.3vdRtn (P3)3VDRmon)	WHT/BLK	15	15
+5va (P5VAmon)	BLK/GRN	3	3
+5vaRtn (P5VARmon)	GRN/BLK	16	16
-5vaRtn (M5VARmon)	BLK/BLU	4	4
-5va (M5VAmon)	BLU/BLK	17	17
+15va (P15VAmon)	BLK/YELLOW	5	5
+15vaRtn (P15VARmon)	YELLOW/BLK	6	6
-15va (M15VAmon)	BLK/BRWN	19	19
-15vaRtn (M15VARmon)	BRWN/BLK	20	20
-28va (M28VAmon)	BLK/ORANGE	10	10
-28vaRtn (M2815VRmon)	ORANGE/BLK	23	23
+48va (P48VAmon)	RED/WHT	21	21
+48vaRtn (P4815VRmon)	WHT/RED	9	9
Vicor Therm Sw	RED/BRWN	25	25
Vicor Therm Sw Rtn	BRWN/RED	13	13

I-HTR CABLE

MONITOR ICC BOARD ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	END	END
+5va (n_SHUTDOWN)	RED/BLK	3	3
+5vaRtn (n_SHUTDOWN_R)	BLK/RED	16	16
+15va (P15VHmon)	GRN/BLK	18	5
+15vaRtn (P15VARmon)	BLK/GRN	6	6
-15va (M15VHmon)	BLU/BLK	7	19
-15vaRtn (M15VARmon)	BLK/BLU	20	20
-28va (M15VHCmon)	YELLOW/BLK	22	10
-28vaRtn (M2815VRmon)	BLK/YELLOW	23	23
+48va (P15VHCmon)	ORANGE/BLK	8	21
+48vaRtn (P4815VRmon)	BLK/ORANGE	9	9
Vicor Therm Sw	RED/BRWN	25	25
Vicor Therm Sw Rtn	BRWN/RED	13	13

NOTES: SEE Prod-ICC Board Connector Connections Type1&2.xls FOR INFORMATION TO MAKE ICC BOARD MODULE.

SEE DES Crate Cable Connections_Type1&2.xls FOR INFORMATION ABOUT MAKING CABLES FOR THE DES CRATE.

SEE Prod-Power Supply Module Connections Type1&2.xls FOR INFORMATION FOR MAKING DES CRATE POWER SUPPLY MODULE.

SEE Prod-Cooling Fan Plenum Connections Type1&2.xls FOR INFORMATION TO MAKE COOLING FAN LOAD BOARD PLENUMS.

* ALL METAL EMI SHIELDING IS MECHANICALLY & ELECTRICALLY CONNECTED TO THE CRATE METAL, WHICH IS @ EARTH GROUND THROUGH IEC POWER CORD (A) & GROUNDING BLOCK.

** THE POWER SUPPLIES ARE DIRECTLY CONNECTED TO THE CRATE METAL AND THUS GET THEIR EARTH GROUND DIRECTLY THROUGH THE CRATE METAL.

*** THE SIGNAL USES UNSHIELDED, TWISTED-PAIR WIRES

PROD_CRATE_WIRING_REV3.0

HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	COPY OF DRAWING NO.:	DESIGNED BY: T.MOORE	DATE DESIGNED: 10.28.08	USED ON:	TITLE: PROD_ICC_REV2.0, ICC BOARD, WIRING FOR DES CRATES TYPES 1 & 2	FILE:	DRAWING NO.:	REV.: V2 / DATE LAST REVISED: 6.17.10

HEPG SIZE B

SIGNAL	WIRE COLOR	SHIELD END	VICOR P.S. END (J10)
Slot1	GREEN/BLK	1	1
Slot2	BROWN/BLK	2	2
Slot3	ORANGE/BLK	3	3
Slot4	BLK/ORANGE	4	4
Slot5	YELLOW/BLK	5	5
Slot6	BLK/YELLOW	6	6
Slot7	BLUE/BLK	7	7
Slot8	BLK/BLUE	8	8
Vcc-In	RED/BLK	9	9
Rtn	BLK/RED	10	10
A/C Power OK	BLK/WHITE	11	11
Gen Shtdwn	WHITE/BLK	12	12

LF SERIES 12 PIN CIR
RECEPTACLE W/ FEMALE PINS

HIROSE P/N: LF10WBR-12S

ENABLE/DISABLE

BLUE

(N)
ICC-VICOR
ENBL

FROM
FEMALE
END

VICOR J10
ENABLE/DISABLE

SIGNAL WIRE COLOR	EXT. BOARD SHIELD END	SHIELD END
Anode RED	1	1
Cathode BLACK	2	2
Collector WHITE	3	3
Emmitter GREEN	4	4

LF SERIES 4 PIN CIR
RECEPTACLE W/ MALE PINS

HIROSE P/N: LF10WBR-4P

VICOR FAN

VIOLET

(M)
ICC-VICOR
FAN

FROM
FEMALE
END

VICOR FAN RPM PCB

VICOR FAN

IEC POWER ENTRY MODULE
W/ FILTER TYCO P/N: 15SRB8-R

A/C IN

H 1
G 3
N 2

LF SERIES 3 PIN CIR
RECEPTACLE W/ FEMALE PINS

HIROSE P/N: LF07WBR-3S

A/C FANOUT

WHITE

5A-SLO BLO

BLACK

WHITE

GREEN

L1
L2
G

VICOR POWER SUPPLY
A/C INPUT

VICOR A/C FANOUT SHIELD

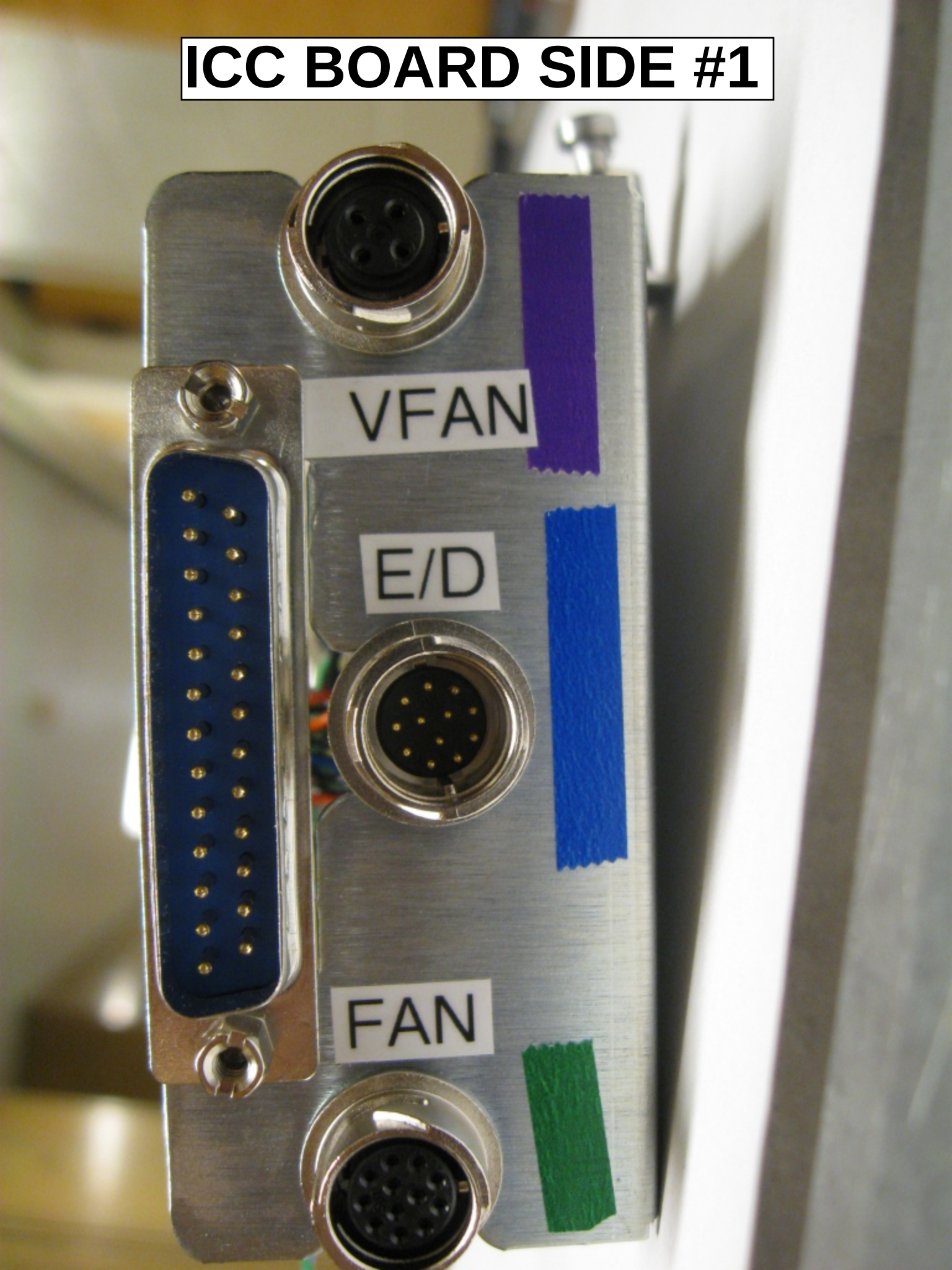
BACK OF VICOR POWER SUPPLY

PROD_CRATE_WIRING_REV3.0

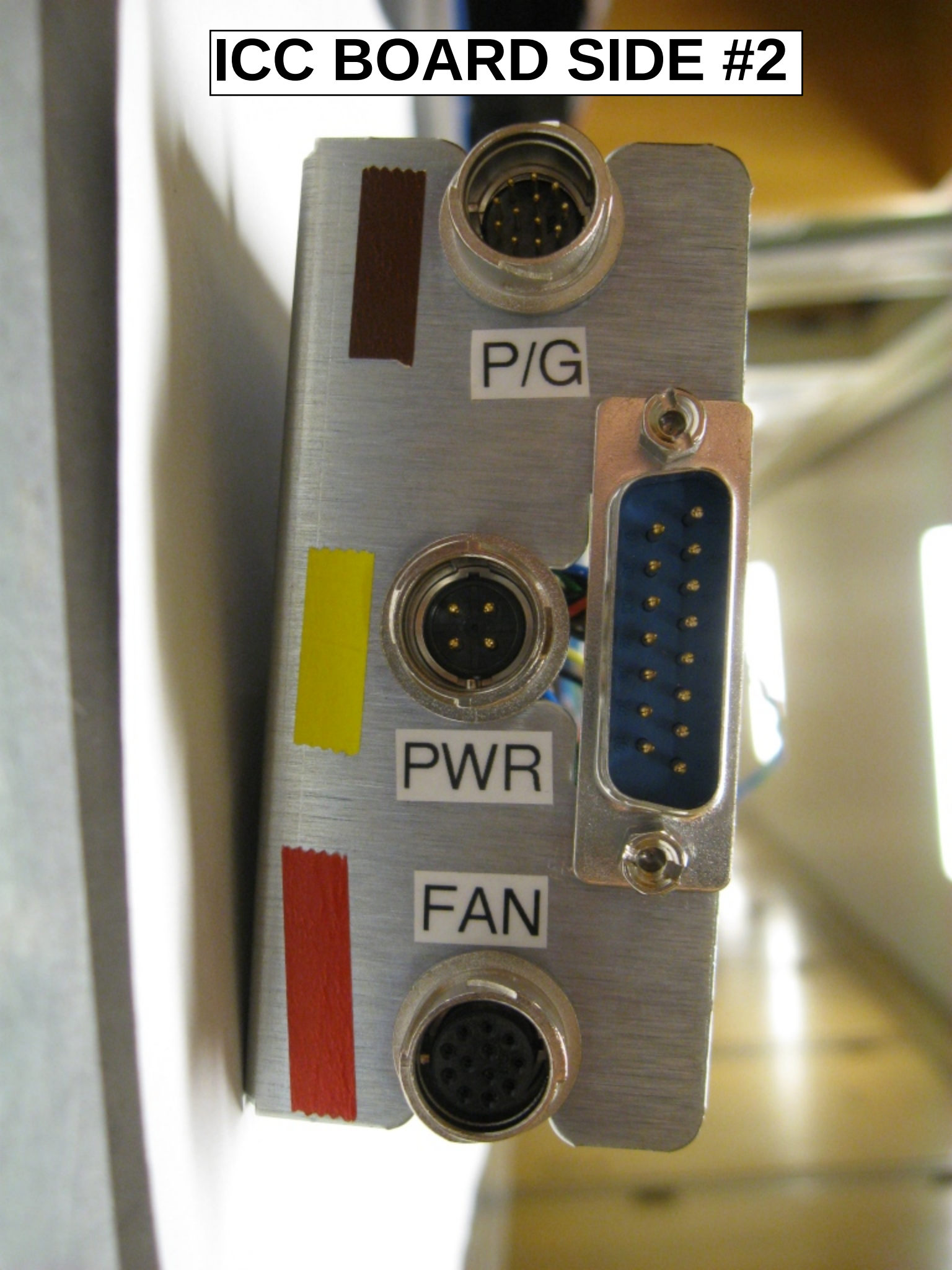
HIGH ENERGY PHYSICS GROUP HEPG UNIVERSITY OF ILLINOIS URBANA - CHAMPAIGN	DESIGNED BY: T.MOORE	DATE DESIGNED: 5.4.10	USED ON:	TITLE: DES PRODUCTION CRATE WIRING – BACK OF VICOR POWER SUPPLY	FILE:	DRAWING NO.:	REV.: V2	DATE REVISED: 6.17.10

HEPG SIZE A

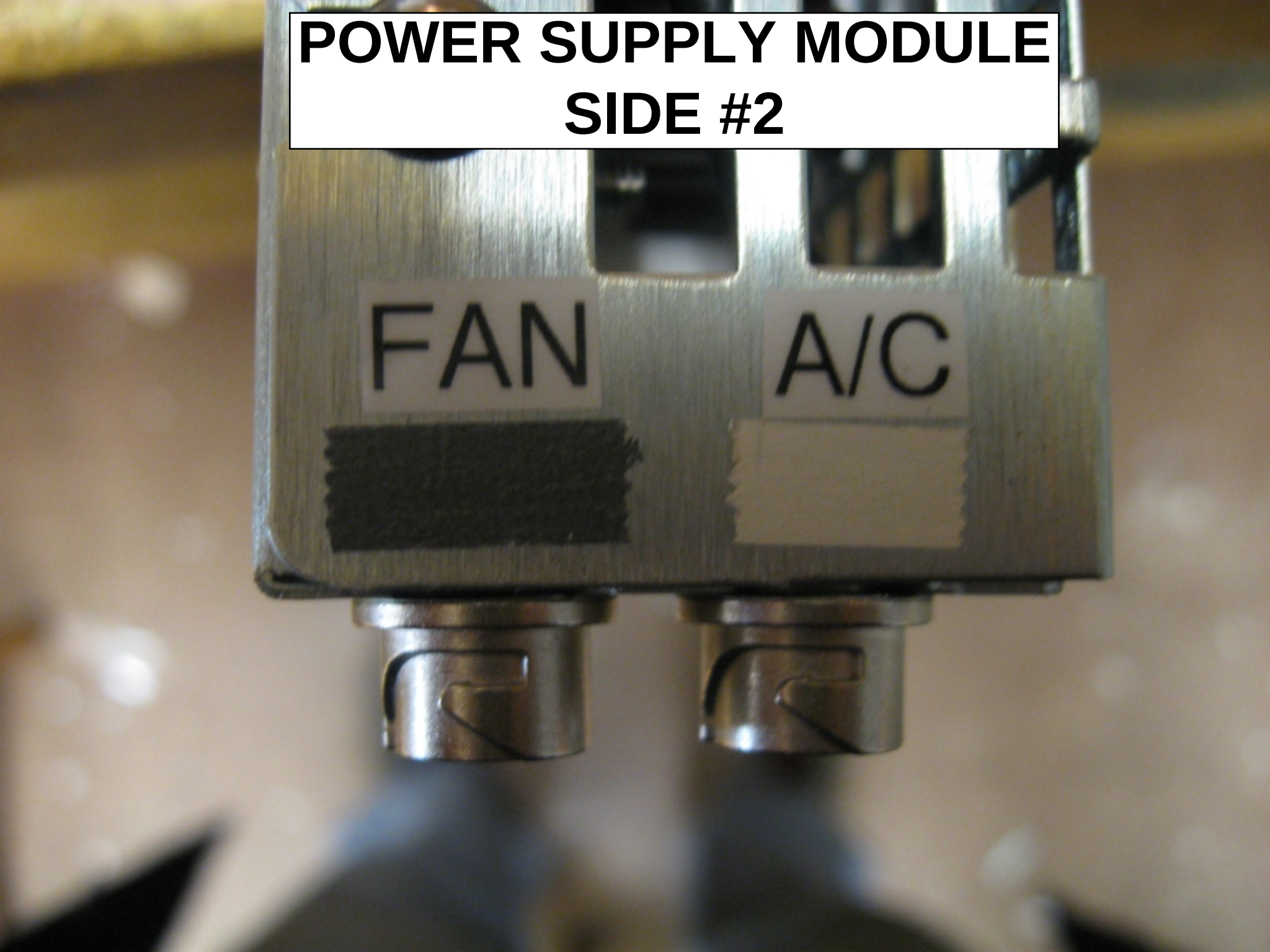
ICC BOARD SIDE #1



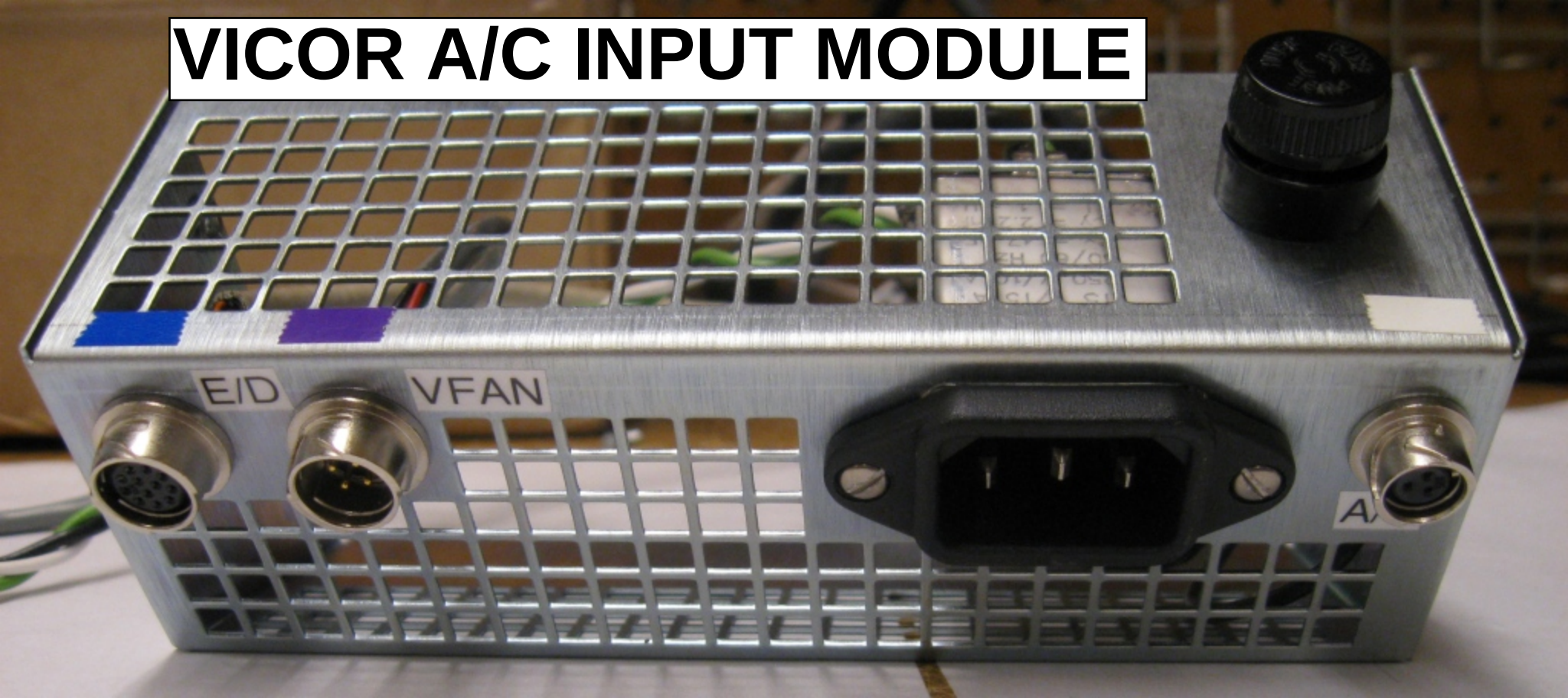
ICC BOARD SIDE #2



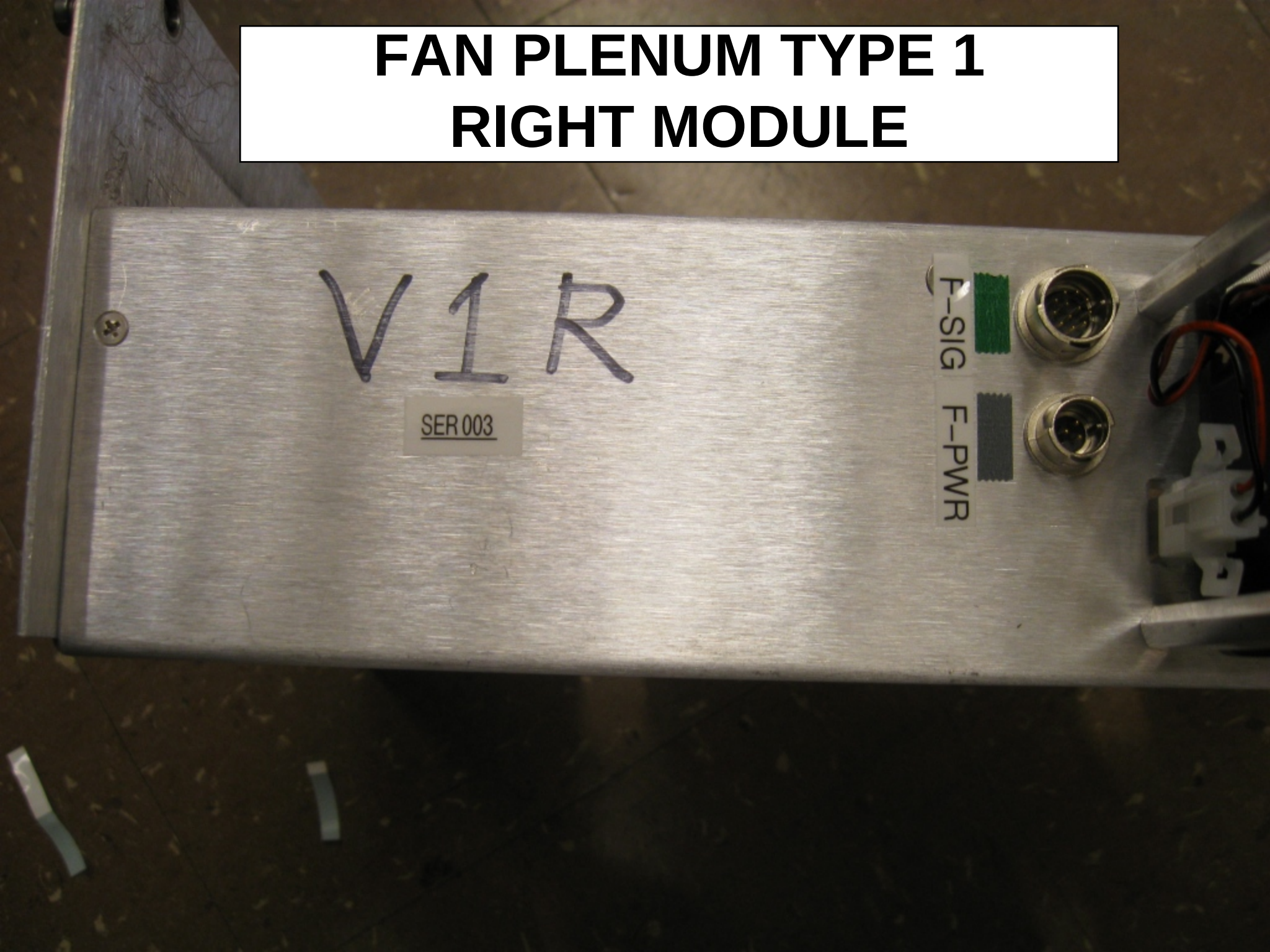

POWER SUPPLY MODULE
SIDE #1
ICC
FAN


POWER SUPPLY MODULE
SIDE #2
FAN
A/C

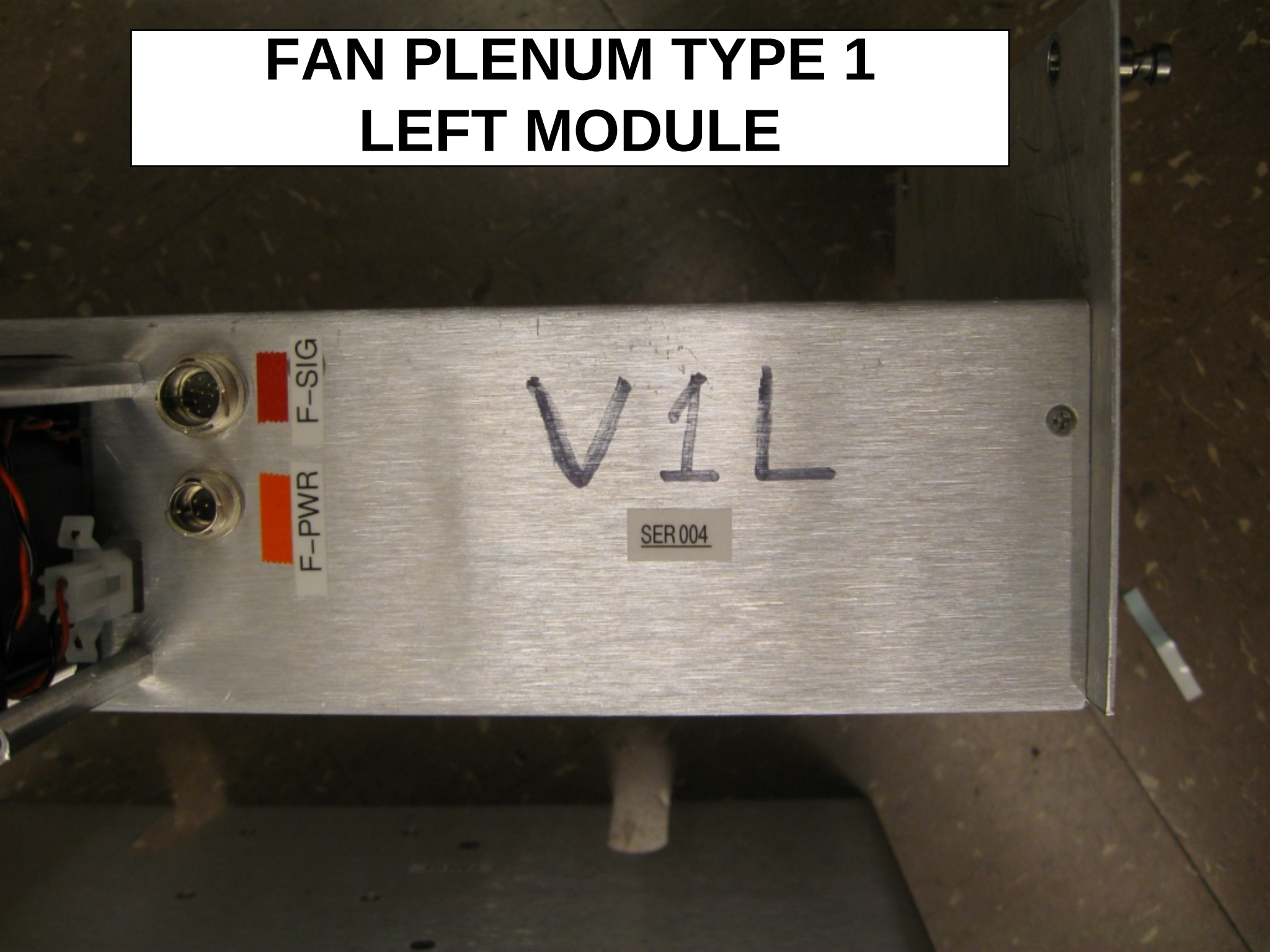
VICOR A/C INPUT MODULE

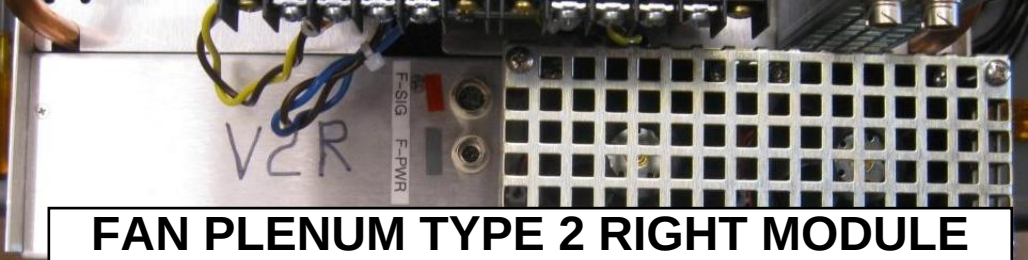


FAN PLENUM TYPE 1
RIGHT MODULE

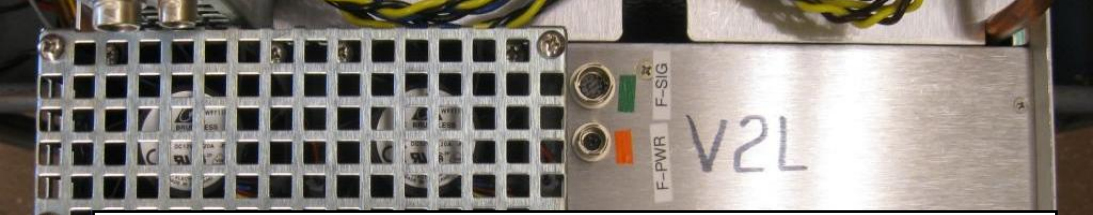


FAN PLENUM TYPE 1
LEFT MODULE





FAN PLENUM TYPE 2 RIGHT MODULE



FAN PLENUM TYPE 2 LEFT MODULE

DES CRATE CABLING **REV3.0** **T.MOORE**
FOR DES CRATE TYPE 1 AND 2 **4.14.10**

(TYPE 2 CRATE WILL REQUIRE FLIPPING THE ICC BOARD OVER AND MAKING DIFFERENT LENGTH CABLES, BUT THE CONNECTIONS TO THE CONNECTORS REMAIN THE SAME)

WIRE CONDUCTOR # AND COLORS

14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG		CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG		24 PIN (12 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG			
3M P/N: 3600B/14SF		GENERAL CABLE P/N: C1352.12.10		3M P/N: 3600B/24 100SF			
14 PIN CABLE		4 PIN CABLE		24 PIN CABLE			
WIRE #	WIRE COLORS	WIRE #	WIRE COLORS	WIRE #	WIRE COLORS	WIRE #	WIRE COLORS
1	BLK/RED	1	RED	1	BLK/RED	15	RED/WHT
2	RED/BLK	2	BLACK	2	RED/BLK	16	WHT/RED
3	BLK/WHT	3	WHITE	3	BLK/WHT	17	RED/GRN
4	WHT/BLK	4	GREEN	4	WHT/BLK	18	GRN/RED
5	BLK/GRN			5	BLK/GRN	19	RED/BLU
6	GRN/BLK			6	GRN/BLK	20	BLU/RED
7	BLK/BLU			7	BLK/BLU	21	RED/YELLOW
8	BLU/BLK			8	BLU/BLK	22	YELLOW/RED
9	BLK/YELLOW			9	BLK/YELLOW	23	RED/BRWN
10	YELLOW/BLK			10	YELLOW/BLK	24	BRWN/RED
11	BLK/BRWN			11	BLK/BRWN		
12	BRWN/BLK			12	BRWN/BLK		
13	BLK/ORANGE			13	BLK/ORANGE		
14	ORANGE/BLK			14	ORANGE/BLK		

10 PIN (5 TWISTED PAIR), SHIELDED, RS-232, GENERAL CABLE P/N: C0765A-12-10	
10 PIN CABLE	
WIRE #	WIRE COLORS
1	BLK
2	WHITE
3	RED
4	GREEN
5	ORANGE
6	BLUE
7	WHITE/BLACK
8	RED/BLACK
9	GREEN/BLACK
10	ORANGE/BLACK

HIROSE LF SERIES CABLE ASSEMBLY PROCEDURE AND TOOL IDENTIFICATION

4 CONDUCTOR CABLE ASSEBMLY WITH 4 PIN LF SERIES CONNECTOR:

1. SEE HIROSE LF SERIES DATA SHEET FOR COMPLETE ASSEMBLY INSTRUCTIONS.
2. SLIP CONNECTOR BACKSHELL, SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR ONTO WIRE.
3. STRIP BACK INSULATION FROM END OF CABLE APPROX. 13 TO 14 MM.
4. FOLD BACK SHIELDING OVER INSULATION APPROX. 4 TO 5 MM.
5. WRAP 1 LAYER OF APPROX. 5MM (WIDE) OF COPPER TAPE TO SHIELD.
6. STRIP WIRES APPROX. 3MM.
7. SOLDER WIRES TO CONNECTOR
8. TEMPORARILY ATTACH CONNECTOR AND MARK WHERE STRAIN RELIEF COLLAR ENDS.
9. ADD COPPER TAPE TO SHIELD UNTIL DIAMETER OF CABLE & COPPER TAPE IS APPROX.7.0 MM.
10. ALSO ADD COPPER TAPE TO CABLE WHERE STRAIN RELIEF COLLAR IS LOCATED UNTIL DIAMETER OF CABLE AND COPPER TAPE IS APPROX. 7.0 MM.
11. INSERT GROUND SHIELD CLAMP ONTO COPPER TAPE/SHIELD. USE PLIARS TO BEND CLAMP OVER WIRE.
12. USE HIROSE TOOL LF-TC-01, 7.9 MM CAVITY TO CRIMP GROUND SHIELD CLAMP ONTO CABLE.
13. SLIDE BACKSHELL UP TO CONNECTOR AND TIGHTEN.
14. SLIDE SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR UP TO BACKSHELL & TIGHTEN.
15. REPEAT STEPS 1-14 FOR THE OTHER END OF THE CABLE.

4 CONDUCTOR CABLE ASSEBMLY WITH 3 PIN LF SERIES CONNECTOR:

1. SEE HIROSE LF SERIES DATA SHEET FOR COMPLETE ASSEMBLY INSTRUCTIONS.
2. SLIP CONNECTOR BACKSHELL, SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR ONTO WIRE.
3. STRIP BACK INSULATION FROM END OF CABLE APPROX. 13 TO 14 MM.
4. FOLD BACK SHIELDING OVER INSULATION APPROX. 4 TO 5 MM.
5. WRAP 1 LAYER OF APPROX. 5MM (WIDE) OF COPPER TAPE TO SHIELD.
6. STRIP WIRES APPROX. 3MM.
7. SOLDER WIRES TO CONNECTOR
8. INSERT GROUND SHIELD CLAMP ONTO COPPER TAPE/SHIELD. USE PLIARS TO BEND CLAMP OVER WIRE.
12. USE AMP CRIMP TOOL 69710-E WITH CRIMP DIE # 220028-2 TO CRIMP GROUND SHIELD CLAMP ONTO CABLE.
13. USE DES 3 PIN CRIMP TOOL TO FINALIZE CRIMPING OF GROUND SHIELD CLAMP. CRIMP WITH SPLIT PART OF CLAMP UP, THEN ROTATE CLAMP 90 DEGREES AND RE-CRIMP TO MAKE CLAMP ROUND SO IT CAN BE INSERTED INTO BACKSHELL
14. SLIDE BACKSHELL UP TO CONNECTOR AND TIGHTEN.
15. SLIDE SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR UP TO BACKSHELL & TIGHTEN.
16. REPEAT STEPS 1-14 FOR THE OTHER END OF THE CABLE.

14 CONDUCTOR CABLE ASSEBMLY WITH 12 PIN LF SERIES CONNECTOR:

1. SEE HIROSE LF SERIES DATA SHEET FOR COMPLETE ASSEMBLY INSTRUCTIONS.
2. SLIP CONNECTOR BACKSHELL, SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR ONTO WIRE.
3. STRIP BACK INSULATION FROM END OF CABLE APPROX. 14 TO 15 MM.
4. FOLD BACK SHIELDING OVER INSULATION APPROX. 4 TO 5 MM.
5. WRAP 1 LAYER OF APPROX. 5MM (WIDE) OF COPPER TAPE TO SHIELD.
6. STRIP WIRES APPROX. 2MM.
7. SOLDER WIRES TO CONNECTOR
8. TEMPORARILY ATTACH CONNECTOR AND MARK WHERE STRAIN RELIEF COLLAR ENDS.
9. ADD COPPER TAPE TO SHIELD UNTIL DIAMETER OF CABLE & COPPER TAPE IS APPROX.7.0 MM.
10. ALSO ADD COPPER TAPE TO CABLE WHERE STRAIN RELIEF COLLAR IS LOCATED UNTIL DIAMETER OF CABLE AND COPPER TAPE IS APPROX. 7.0 MM.
11. INSERT GROUND SHIELD CLAMP ONTO COPPER TAPE/SHIELD. USE PLIARS TO BEND CLAMP OVER WIRE.
12. USE HIROSE TOOL LF-TC-01, 7.9 MM CAVITY TO CRIMP GROUND SHIELD CLAMP ONTO CABLE.
13. SLIDE BACKSHELL UP TO CONNECTOR AND TIGHTEN.
14. SLIDE SEAL BUSHING, STRAIN RELIEF COLLAR, AND TIGHTENING COLLAR UP TO BACKSHELL & TIGHTEN.
15. REPEAT STEPS 1-14 FOR THE OTHER END OF THE CABLE.

CABLE (A): **A/C CABLE FEED FOR DES CRATE**

CABLE: COMPUTER CORD, 18AWG, 3 CONDUCTOR, BLACK, 90" LONG, SVT CABLE, NEMA 5-15P to IEC 320-C13
QUALTEK P/N: 312021-01

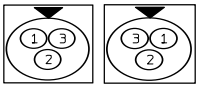
Cable (B): **A/C CABLE BETWEEN VICOR POWER SUPPLY & CRATE POWER SUPPLY MODULE**

CABLE: CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG
GENERAL CABLE P/N: C1352.12.10

VICOR END1: LF SERIES 3 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF07WBP-3P

POWER MODULE
END2: LF SERIES 3 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF07WBP-3S

SIGNAL	WIRE COLOR	VICOR END1	P. MODULE END2	CABLE COLOR CABLE LENGTH
HOT	BLACK	1	1	WHITE
NEUTRAL	WHITE	2	2	*7.25"



MALE PINS FEMALE PINS

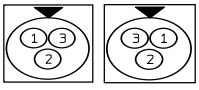
CABLE (C): **DC CABLE BETWEEN POWER SUPPLY MODULE AND COOLING FANS POWER SUPPLY LOAD BOARDS**

CABLE: CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG
GENERAL CABLE P/N: C1352.12.10

POWER MODULE
END3: LF SERIES 3 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF07WBP-3P

COOLING FANS
POWER SUPPLY
LOAD BOARD
END4: LF SERIES 3 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF07WBP-3S

SIGNAL	WIRE COLOR	P. MODULE END3	COOL FAN BOARD END4	FANS #1-4 CABLE COLOR CABLE LENGTH	FANS #5-8 CABLE COLOR CABLE LENGTH
+12VDC	RED	1	1	GREY	ORANGE
+12VDC_RTN	BLACK	2	2	9.0"	9.5"



MALE PINS FEMALE PINS

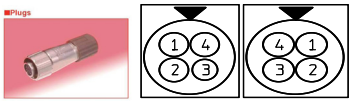
CABLE (D): DC CABLE BETWEEN POWER SUPPLY MODULE AND ICC BOARD

CABLE: CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG
GENERAL CABLE P/N: C1352.12.10

POWER MODULE
END5: LF SERIES 4 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF10WBP-4P

ICC BOARD
END6: LF SERIES 4 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-4S

SIGNAL	WIRE COLOR	P. MODULE END5	ICC BOARD END6	CABLE COLOR / CABLE LENGTH
+12VDC	RED	1	1	YELLOW
+12VDC_RTN	BLACK	2	2	
-12VDC_RTN	GREEN	3	3	14.0"
-12VDC	WHITE	4	4	



MALE PINS FEMALE PINS

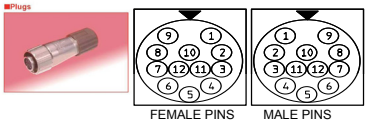
CABLE (E): COOLING FAN RPM SIGNAL CABLES BETWEEN COOLING FAN POWER SUPPLY LOAD BOARD MODULES AND ICC BOARD

CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

COOLING FANS
POWER SUPPLY
LOAD BOARD
END7: LF SERIES 12 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-12S

ICC BOARD
END8: LF SERIES 12 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF10WBP-12P

SIGNAL	WIRE COLOR	FAN LOAD BOARD END7	ICC BOARD END8	FANS #1-4 CABLE COLOR / CABLE LENGTH	FANS #5-8 CABLE COLOR / CABLE LENGTH
FAN #1/FAN #5 SIGNAL	RED/BLK	1	1		
FAN #1/FAN #5 SIGNAL RTN	BLK/RED	2	2		
FAN #2/FAN #6 SIGNAL	WHT/BLK	3	3	GREEN	RED
FAN #2/FAN #6 SIGNAL RTN	BLK/WHT	4	4		
FAN #3/FAN #7 SIGNAL	GRN/BLK	5	5		
FAN #3/FAN #7 SIGNAL RTN	BLK/GRN	6	6		
FAN #4/FAN #8 SIGNAL	BLU/BLK	7	7		
FAN #4/FAN #8 SIGNAL RTN	BLK/BLU	8	8	9.0"	9.0"
FAN #1-8 CNTRL	YELLOW/BLK	9	9		
FAN #1-8 CNTRL RTN	BLK/YELLOW	10	10		



FEMALE PINS MALE PINS

CABLE (F): **ICS CRATE MONITOR CABLE BETWEEN CONNECTOR IN TOP COVER OF CRATE AND ICC BOARD**

CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

TOP COVER
END9: D-SUB 15 PIN METAL PLUG WITH MALE PINS, SOLDERCUP, MOUNTED INTO TOP COVER
SPC P/N: SPC15239

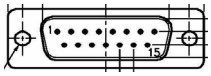
ICC BOARD
END10: D-SUB 15 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

SIGNAL	WIRE COLOR	TOP COVER END9	ICC BOARD END10	CABLE COLOR / CABLE LENGTH
Ok_Pwr Up In	RED/BLK	1	1	NO COLOR
Ok_Pwr Up Rtn	BLK/RED	2	2	
DHE Sys OK out	WHT/BLK	3	3	
DHE Sys OK Rtn	BLK/WHT	4	4	
ICC SDO	GRN/BLK	5	5	
ICC SDO Rtn	BLK/GRN	6	6	
ICC SDI	BLU/BLK	7	7	
ICC SDI Rtn	BLK/BLU	8	8	33.5"
* SPI_CS	BRWN/BLK	9	9	
* SPI_CS_Rtn	BLK/BRWN	10	10	
SCLK IN Rtn	BLK/YELLOW	11	11	
SCLK IN	YELLOW/BLK	12	12	
Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	13	13	
Ok_Pwr_Up_ECO	ORANGE/BLK	14	14	

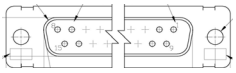
ICS EMULATOR PLUG ASSEMBLY

1. USE DB-15 RECEPTACLE, FEMALE PINS, SPC P/N: SPC15299
2. CONNECT PIN 1& PIN 12 TO PIN 14
3. CONNECT PIN 2 & PIN 11 TO PIN 13

* SPI_CS was not used on prototype version. External cable is different on prot version.



MALE PINS


FEMALE PINS

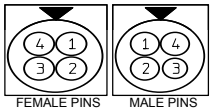
CABLE (G): **VICOR FAN RPM CABLE BETWEEN EXTERNAL VICOR FAN RPM MODULE AND ICC BOARD**

CABLE: CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG
GENERAL CABLE P/N: C1352.12.10

VICOR FAN RPM
END11: LF SERIES 4 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-4S

ICC BOARD
END12: LF SERIES 4 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF10WBP-4P

SIGNAL	WIRE COLOR	VICOR FAN END11	ICC BOARD END12	CABLE COLOR / CABLE LENGTH
Anode	RED	1	1	VIOLET
Cathode	BLACK	2	2	
Collector	WHITE	3	3	8.0"
Emmitter	GREEN	4	4	



FEMALE PINS MALE PINS

CABLE (H): VICOR ENABLES/DISABLES CABLE BETWEEN VICOR POWER SUPPLY AND ICC BOARD

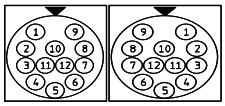
CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

VICOR ENABLE/DISABLE
END13: LF SERIES 12 PIN CIRCULAR PLUG WITH MALE PINS
HIROSE P/N: LF10WBP-12P

ICC BOARD
END14: LF SERIES 12 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-12S

SIGNAL	WIRE COLOR	VICOR ENBL/DISBLE END13	ICC BOARD END14	CABLE COLOR / CABLE LENGTH
Slot1 E/D	GREEN/BLK	1	1	BLUE
Slot2 E/D	BROWN/BLK	2	2	
Slot3 E/D	ORANGE/BLK	3	3	
Slot4 E/D	BLK/ORANGE	4	4	
Slot5 E/D	YELLOW/BLK	5	5	
Slot6 E/D	BLK/YELLOW	6	6	7.0"
Slot7 E/D	BLUE/BLK	7	7	
Slot8 E/D	BLK/BLUE	8	8	
Vcc-In	RED/BLK	9	9	
Rtn	BLK/RED	10	10	
A/C Power OK	BLK/WHITE	11	11	
Gen Shtdwn	WHITE/BLK	12	12	

*Added 4/12/10 for power up eco



MALE PINS FEMALE PINS

CABLE (I-DAQ): VICOR MONITORED VOLTAGES CABLE BETWEEN VICOR POWER SUPPLY AND ICC BOARD TO BE USED WITH DES DAQ CRATE

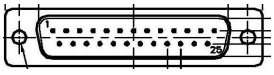
CABLE: 24 PIN (12 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/24 100SF

VICOR MONITOR
END15: D-SUB 25 PIN METAL PLUG WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15323

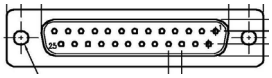
ICC BOARD
END16: D-SUB 25 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15276

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR END15	ICC BOARD END16	CABLE COLOR / CABLE LENGTH
+5vd ('SHUTDOWN)	BLK/RED	1	1	NO COLOR
+5vdRtn ('SHUTDOWN_R)	RED/BLK	14	14	
+3.3vd (P3_3VDmon)	BLK/WHT	2	2	
+3.3vdRtn (P3)3VDRmon)	WHT/BLK	15	15	
+5va (P5VAmon)	BLK/GRN	3	3	
+5vaRtn (P5VARmon)	GRN/BLK	16	16	
-5vaRtn (M5VARmon)	BLK/BLU	4	4	
-5va (M5VAmon)	BLU/BLK	17	17	
+15va (P15VAmon)	BLK/YELLOW	5	5	
+15vaRtn (P15VARmon)	YELLOW/BLK	6	6	13.0"
-15va (M15VAmon)	BLK/BRWN	19	19	
-15vaRtn (M15VARmon)	BRWN/BLK	20	20	
-28va (M28VAmon)	BLK/ORANGE	10	10	
-28vaRtn (M2815VRmon)	ORANGE/BLK	23	23	
+48va (P48VAmon)	RED/WHT	21	21	
+48vaRtn (P4815VRmon)	WHT/RED	9	9	
Vicor Therm Sw	RED/BRWN	25	25	
Vicor Therm Sw Rtn	BRWN/RED	13	13	

Note: External cable & ICC board connector is different on proto version.



MALE PINS



FEMALE PINS

CABLE (I-HTR): VICOR MONITORED VOLTAGES CABLE BETWEEN VICOR POWER SUPPLY AND ICC BOARD
TO BE USED WITH DES DAQ CRATE

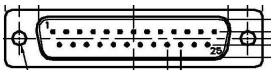
CABLE: 24 PIN (12 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/24 100SF

VICOR MONITOR END15: D-SUB 25 PIN METAL PLUG WITH MALE PINS, SOLDERCUP
SPC P/N: SPC15323

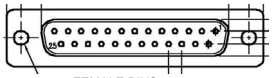
ICC BOARD END16: D-SUB 25 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15276

ICC SIGNAL (FILTERBOX SIGNAL)	WIRE COLOR	MONITOR END15	ICC BOARD END16	CABLE COLOR CABLE LENGTH
+5va (n_SHUTDOWN)	RED/BLK	3	3	
+5vaRtn (n_SHUTDOWN_R)	BLK/RED	16	16	
+15va (P15VHmon)	GRN/BLK	18	5	NO COLOR
+15vaRtn (P15VARmon)	BLK/GRN	6	6	
-15va (M15VHmon)	BLU/BLK	7	19	
-15vaRtn (M15VARmon)	BLK/BLU	20	20	
-28va (M15VHCmon)	YELLOW/BLK	22	10	
-28vaRtn (M2815VRmon)	BLK/YELLOW	23	23	
+48va (P15VHCmon)	ORANGE/BLK	8	21	13.0"
+48vaRtn (P4815VRmon)	BLK/ORANGE	9	9	
Vicor Therm Sw	RED/BRWN	25	25	
Vicor Therm Sw Rtn	BRWN/RED	13	13	

Note: Production ICC Boards for both DAQ & Heater have the same wiring connections. The signal swapping is done in the external cables (above).
External cable & ICC board connector is different on proto version.



MALE PINS



FEMALE PINS

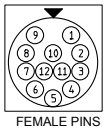
CABLE (J): DAQ CRATE - VICOR POWER GOOD CABLE BETWEEN VICOR POWER SUPPLY AND ICC BOARD
(THIS CABLE IS ONLY SHIELDED AT THE ICC BOARD END)

CABLE: 10 PIN (5 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 22 AWG
GENERAL CABLE P/N: C0765A-12-10

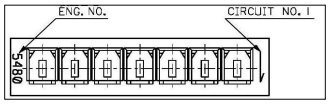
VICOR POWER GOOD END 17: 4 PIN INDUSTRIAL CONNECTOR (X2)
MOLEX P/N: 39-01-0043 (HOUSING), 30-00-0031 (TERMINALS)

ICC BOARD END 18: LF SERIES 12 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-12S

	ICC BOARD		VICOR				
SIGNAL	WIRE COLOR	END18	Converterpac Voltages	WIRE COLOR	POWER GOOD ENDS	CABLE COLOR CABLE LENGTH	
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	+5vd Vcc	RED	J3-1:Pin 4		
			+3.3vd Vcc	RED	J3-2: Pin 4		
			-28va Vcc	RED	J3-4: Pin 4		
			-15va Vcc	RED	J3-5: Pin 4		
			+15va Vcc	RED	J3-6: Pin 4	BROWN	
			-5va Vcc	RED	J3-7: Pin 4		
			+5va Vcc	RED	J3-8: Pin 4		
Digital PG (was Slot2 PG)	GREEN	3	+5vd PG	ORANGE	J3-1:Pin 3		Connects to E/D Slot4-8
			+3.3vd PG	YELLOW	J3-2:Pin 3		
Analog PG (was Slot2 Vcc)	WHITE	4	-28va PG	GREEN	J3-4:Pin 3		
			-15va PG	BLUE	J3-5:Pin 3		
			+15va PG	VIOLET	J3-6:Pin 3		
			-5va PG	BROWN	J3-7:Pin 3	12.75"	
			+5va PG	WHITE	J3-8:Pin 3		
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	+5vd Rtn	BLACK	J3-1:Pin 1		
			+3.3vd Rtn	BLACK	J3-2:Pin 1		
			-28va Rtn	BLACK	J3-4:Pin 1		
			-15va Rtn	BLACK	J3-5:Pin 1		
			+15va Rtn	BLACK	J3-6:Pin 1		
			-5va Rtn	BLACK	J3-7:Pin 1		
			+5va Rtn	BLACK	J3-8:Pin 1		



FEMALE PINS



FEMALE PINS

NOTE: These signals are connected to an external fanout board that lays in front of the Vicor converterpacs. Vcc, Rtn, & power good (PG) signals fan out to 7 converterpacs. (Slot1, Slot2, Slot4, Slot5, Slot6, Slot7, & Slot8).

CABLE (J): **HEATER CONTROLLER CRATE - VICOR POWER GOOD CABLE BETWEEN VICOR POWER SUPPLY AND ICC BOARD (THIS CABLE IS ONLY SHIELDED AT THE ICC BOARD END)**

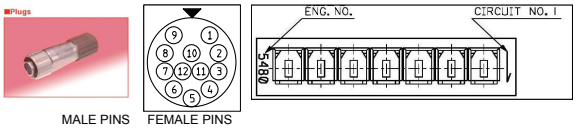
CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

VICOR POWER GOOD END 17: 4 PIN INDUSTRIAL CONNECTOR (X2)
MOLEX P/N: 39-01-0043 (HOUSING), 30-00-0031 (TERMINALS)

ICC BOARD END 18: LF SERIES 12 PIN CIRCULAR PLUG WITH FEMALE PINS
HIROSE P/N: LF10WBP-12S

SIGNAL	WIRE COLOR	ICC BOARD END18	VICOR POWER GOOD ENDS	CABLE COLOR / CABLE LENGTH
Digital PG (was Slot2 PG)	GREEN	3	J3-2:Pin 3	BROWN
P/G Vcc (was Slot1 Vcc)	BLK/RED	1	J3-2:Pin 4	12.75"
PG Rtn (was Slot2 Rtn)	BLK/WHT	6	J3-2:Pin 1	

Note: Only use J3 for Slot2 (+3.3vd), but insert it into Slot1 (+15vd).



MALE PINS FEMALE PINS

CABLE (L): **ICC TO ICS CRATE MONITOR CABLE (BETWEEN ICS AND CONNECTOR IN TOP COVER)**

CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

TOP COVER END21: D-SUB 15 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

ICS END22: D-SUB 37 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15211

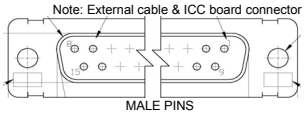
SIGNAL	WIRE COLOR	DSUB 15 END21	DSUB 37 END22
Ok_Pwr Up In	RED/BLK	1	4
Ok_Pwr Up Rtn	BLK/RED	2	9
DHE Sys OK out	WHT/BLK	3	1
DHE Sys OK Rtn	BLK/WHT	4	2
ICC SDO	GRN/BLK	5	1
ICC SDO Rtn	BLK/GRN	6	3
ICC SDI	BLU/BLK	7	5
ICC SDI Rtn	BLK/BLU	8	9
* SPI_CS	BRWN/BLK	9	7
* SPI_CS_Rtn	BLK/BRWN	10	9
SCLK IN Rtn	BLK/YELLOW	11	9
SCLK IN	YELLOW/BLK	12	6
** Ok_Pwr_Up_ECO	ORANGE/BLK	** N/C	** N/C
** Ok_Pwr_Up_Rtn_ECO	BLK/ORANGE	** N/C	** N/C

* ADD AN 1/8W, 2.0K OHM RESISTOR BETWEEN PIN 3 (ICC_SDO_RTN) & PIN29 (COMMON RTN) OF 37 PIN DSUB CONNECTOR.

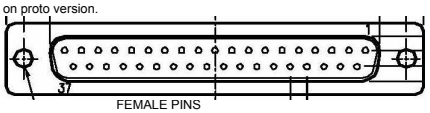
* SPI_CS was not used on prototype version.

** Ok_Pwr_Up_ECO & Ok_Pwr_Up_Rtn_ECO AREN'T BROUGHT OUT THROUGH THIS CABLE TO AVOID CONFLICTS WITH ICS SIGNALS COMING OUT FOR OTHER DEVICES. EMULATOR PLUG MUST BE CONNECTED TO CONNECTOR IN TOP COVER OF CRATE ONLY.

Note: External cable & ICC board connector is different on proto version.



MALE PINS



FEMALE PINS

CABLE (M): ICC-VICOR FAN CABLE (INSIDE SHIELDING AT END OF VICOR P.S. TO EXTERNAL BOARD

CABLE: CIRCULAR COMPUTER CABLE, 4 CONDUCTOR, RS-232, TWISTED PAIRS, SHIELDED, CABLE, 22 AWG
GENERAL CABLE P/N: C1352.12.10

EXTERNAL BOARD END23: AMPMODU SERIES 4 PIN RECEPTACLE W/ FEMALE PINS
AMP/TYCO P/N: 487526-3

VICOR SHIELD END24: 4 PIN CIRCULAR RECEPTACLE, MALE PINS, SHIELDED, PANEL MOUNT
HIROSE P/N: LF10WBR-4P

SIGNAL	WIRE COLOR	EXT. BOARD END23	SHIELD END24
Anode	RED	1	1
Cathode	BLACK	2	2
Collector	WHITE	3	3
Emmitter	GREEN	4	4



FEMALE PINS

FEMALE PINS

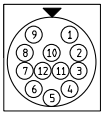
CABLE (N): ICC-VICOR ENABLE CABLE (BETWEEN SHIELD AND VICOR POWER SUPPLY)

CABLE: 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

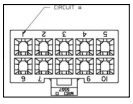
SHIELD END25: LF SERIES 12 PIN CIRCULAR RECEPTACLE WITH FEMALE PINS
HIROSE P/N: LF10WBR-12S

VICOR P.S. END26: MOLEX 12 PIN INDUSTRIAL PLUG WITH FEMALE PINS
MOLEX P/N: 39-01-2020 (HOUSING), 44476-1112 (FEMALE CRIMP TERMINALS)

SIGNAL	WIRE COLOR	SHIELD END25	VICOR P.S. (J10) END26	
Slot1	GREEN/BLK	1	1	
Slot2	BROWN/BLK	2	2	
Slot3	ORANGE/BLK	3	3	
Slot4	BLK/ORANGE	4	4	
Slot5	YELLOW/BLK	5	5	
Slot6	BLK/YELLOW	6	6	
Slot7	BLUE/BLK	7	7	
Slot8	BLK/BLUE	8	8	
Vcc-In	RED/BLK	9	9	
Rtn	BLK/RED	10	10	
A/C Power OK	BLK/WHITE	11	11	*Added 4/12/10 for power up eco
Gen Shtdwn	WHITE/BLK	12	12	



FEMALE PINS


FEMALE PINS

DES ICS-ICC CRATE MONITOR CABLING **REV3.0** **T.MOORE**
5.3.10

WIRE CONDUCTOR # AND COLORS

14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG	
3M P/N: 3600B/14SF	
14 PIN CABLE WIRE #	WIRE COLORS
1	BLK/RED
2	RED/BLK
3	BLK/WHT
4	WHT/BLK
5	BLK/GRN
6	GRN/BLK
7	BLK/BLU
8	BLU/BLK
9	BLK/YELLOW
10	YELLOW/BLK
11	BLK/BRWN
12	BRWN/BLK
13	BLK/ORANGE
14	ORANGE/BLK

CABLE (L): ICC TO ICS CRATE MONITOR CABLE (BETWEEN ICS AND CONNECTOR IN TOP COVER)

CABLE(X4): 14 PIN (7 TWISTED PAIR), SHIELDED, RS-232, COMPUTER CABLE, 28 AWG
3M P/N: 3600B/14SF

TOP COVER
END21 (X4): 4 D-SUB 15 PIN METAL PLUGS WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15299

ICS
END22 (X1): D-SUB 37 PIN METAL PLUG WITH FEMALE PINS, SOLDERCUP
SPC P/N: SPC15211

	ICC MODULE SIGNAL	NI9403 SIGNAL	WIRE COLOR	DSUB 15 END21	DSUB 37 END22
ICC MODULE CABLE #1	Ok_Pwr Up In	DIO3	RED/BLK	1	4
	Ok_Pwr Up Rtn	COM	BLK/RED	2	9
	DHE Sys OK out	DIO0	WHT/BLK	3	1
	DHE Sys OK Rtn	DIO1	BLK/WHT	4	2
	ICC SDO	DIO0	GRN/BLK	5	1
	ICC SDO Rtn	DIO2	BLK/GRN	6	3
	ICC SDI	DIO4	BLU/BLK	7	5
	ICC SDI Rtn	COM	BLK/BLU	8	9
	SPI_CS	DIO6	BRWN/BLK	9	7
	SPI_CS_Rtn	COM	BLK/BRWN	10	9
	SCLK IN Rtn	COM	BLK/YELLOW	11	9
	SCLK IN	DIO5	YELLOW/BLK	12	6

* ADD AN 1/8W, 2.0K OHM RESISTOR BETWEEN PIN 3 (ICC_SDO_RTN) & PIN9 (COMMON RTN) OF 37 PIN DSUB

ICC MODULE CABLE #2	Ok_Pwr Up In #2	DIO10	RED/BLK	1	13
	Ok_Pwr Up Rtn #2	COM	BLK/RED	2	10
	DHE Sys OK out #2	DIO7	WHT/BLK	3	8
	DHE Sys OK Rtn #2	DIO8	BLK/WHT	4	11
	ICC SDO #2	DIO7	GRN/BLK	5	8
	ICC SDO Rtn #2	DIO9	BLK/GRN	6	12
	ICC SDI #2	DIO11	BLU/BLK	7	14
	ICC SDI Rtn #2	COM	BLK/BLU	8	10
	SPI_CS #2	DIO13	BRWN/BLK	9	16
	SPI_CS_Rtn #2	COM	BLK/BRWN	10	10
	SCLK IN Rtn #2	COM	BLK/YELLOW	11	10
	SCLK IN #2	DIO12	YELLOW/BLK	12	15

* ADD AN 1/8W, 2.0K OHM RESISTOR BETWEEN PIN 12 (ICC_SDO_RTN) & PIN10 (COMMON RTN) OF 37 PIN DSUB

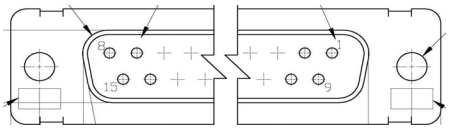
	ICC MODULE SIGNAL	NI9403 SIGNAL	WIRE COLOR	DSUB 15 END21	DSUB 37 END22
ICC MODULE CABLE #3	Ok_Pwr Up In #3	DIO21	RED/BLK	1	25
	Ok_Pwr Up Rtn #3	COM	BLK/RED	2	28
	DHE Sys OK out #3	DIO18	WHT/BLK	3	22
	DHE Sys OK Rtn #3	DIO19	BLK/WHT	4	23
	ICC SDO #3	DIO18	GRN/BLK	5	22
	ICC SDO Rtn #3	DIO20	BLK/GRN	6	24
	ICC SDI #3	DIO22	BLU/BLK	7	26
	ICC SDI Rtn #3	COM	BLK/BLU	8	28
	SPI_CS #3	DIO24	BRWN/BLK	9	30
	SPI_CS_Rtn #3	COM	BLK/BRWN	10	28
	SCLK IN Rtn #3	COM	BLK/YELLOW	11	28
	SCLK IN #3	DIO23	YELLOW/BLK	12	27

* ADD AN 1/8W, 2.0K OHM RESISTOR BETWEEN PIN 24 (ICC_SDO_RTN) & PIN28 (COMMON RTN) OF 37 PIN DSUB

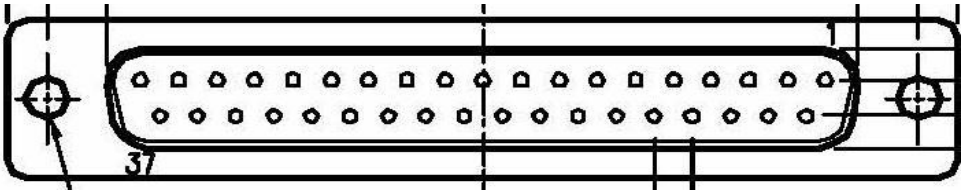
ICC MODULE CABLE #4	Ok_Pwr Up In #4	DIO28	RED/BLK	1	34
	Ok_Pwr Up Rtn #4	COM	BLK/RED	2	29
	DHE Sys OK out #4 (+5V4)	DIO25	WHT/BLK	3	31
	DHE Sys OK Rtn #4	DIO26	BLK/WHT	4	32
	ICC SDO #4 (+5V4)	DIO25	GRN/BLK	5	31
	ICC SDO Rtn #4	DIO27	BLK/GRN	6	33
	ICC SDI #4	DIO29	BLU/BLK	7	35
	ICC SDI Rtn #4	COM	BLK/BLU	8	29
	SPI_CS #4	DIO31	BRWN/BLK	9	37
	SPI_CS_Rtn #4	COM	BLK/BRWN	10	29
	SCLK IN Rtn #4	COM	BLK/YELLOW	11	29
	SCLK IN #4	DIO30	YELLOW/BLK	12	36

* ADD AN 1/8W, 2.0K OHM RESISTOR BETWEEN PIN 33 (ICC_SDO_RTN) & PIN29 (COMMON RTN) OF 37 PIN DSUB

** Ok_Pwr_Up_ECO & Ok_Pwr_Up_Rtn_ECO AREN'T BROUGHT OUT THROUGH THIS CABLE TO AVOID CONFLICTS WITH ICS SIGNALS COMING OUT FOR OTHER DEVICES. EMULATOR PLUG MUST BE CONNECTED TO CONNECTOR IN TOP COVER OF CRATE ONLY.



FEMALE PINS



FEMALE PINS