

I.

SERI-1 (SERvo Interface card for PMAC1 family, P/N:9109-00-001-x) PMAC1

JMACH FLAG (, ,)

Isolation 가

Opto-coupler

PMAC

Piggyback

PMAC2A PC/104

+/-10V

PMAC

(

Section xx

Cable).

가 PMAC model

1. PMAC1 :

Mini-PMAC1 (ISA/PCI), PMAC1-Lite (ISA/PCI), PMAC1-PC (ISA/PCI)

Turbo PMAC Lite (PCI), Turbo PMAC1-PC (ISA/PCI)

PMAC1-VME, Turbo-PMAC1 VME

2. PMAC2A PC/104

1. Opto-isolation : 24V

_____:

FLAG Input : , , Amp Fault, USER INPUT(PMAC2A PC/104)

Amp Enable(Servo On), EQU(Position Compare Output, PMAC2A PC/104)



- ? (+15V) Isolation
- Jumper XXX (Section xx Jumper)
- 2. 4 가
- 3. Dsub , FLAG
- 4. Watchdog Error : PMAC watchdog error가 Isolation
- 5. PMAC ACC-8D Option IDC
- 6. / 가
- ~~Opt.1~~ : PMAC2A PC/104 Adapter Piggyback board
- ~~Opt.2~~ : On-board Encoder Isolation Circuit
- ~~Opt.3~~ : Analog Power Partial Failure Detect Board
- ~~Opt.4~~ : VFC (Voltage to Frequency Converter) board
- ~~Opt.5~~ : Rounded Ribbon Cable with Shield wire

100mA@ 5VDC (on-board Only)
 300mA Max @+15VDC (on-board Only)
 500mA Max @24VDC (on-board Only)
 Operating : 0 ~ 60°C
 Storage : -12°C ~ 80°C
 10% ~ 95%, non-condensing

II. Option

Option

1. SERI1-Opt.1 : PMAC2A PC/104 Adapter Piggyback board

	PCB	PMAC2A PC/104
	SERI1	60pin IDC Header(J1) 20pin IDC Header(J15)
3	IDC Header	PMAC2A PC/104
4		()

2. SERI1-Opt.2 : On-board Encoder Isolation Circuit

SERI1 High Speed Opto-coupler
 가 10Mhz Bandwidth
 SERI1 가 ,
 (EDM, Laser /)
 5V

3. SERI1-Opt.3 : Analog Power Partial Failure Detect Board

+/- 10V (/) PMAC
 (+/- 12V) PMAC
 () 가 Enable
 PMAC
 가
 PMAC
 (+12V ?12V) 가

Opt.3 PMAC

1990 (Turbo) PMAC1-PC (ISA), (Turbo) PMAC1-VME
 SMD PMAC PCI bus
 , PMAC2A PC/104

** : PMAC1 - PC (ISA), Turbo-PMAC PC (ISA), PMAC2A PC/104

4. SERI1-Opt.4 : VFC (Voltage to Frequency Converter) board

PMAC Pulse/Dir.
 (Position Pack) 가
 가 Duty 가
 Section xx VFC converter
 Pulse-Modulation PMAC2 Style
 (PMAC2A PC/104)

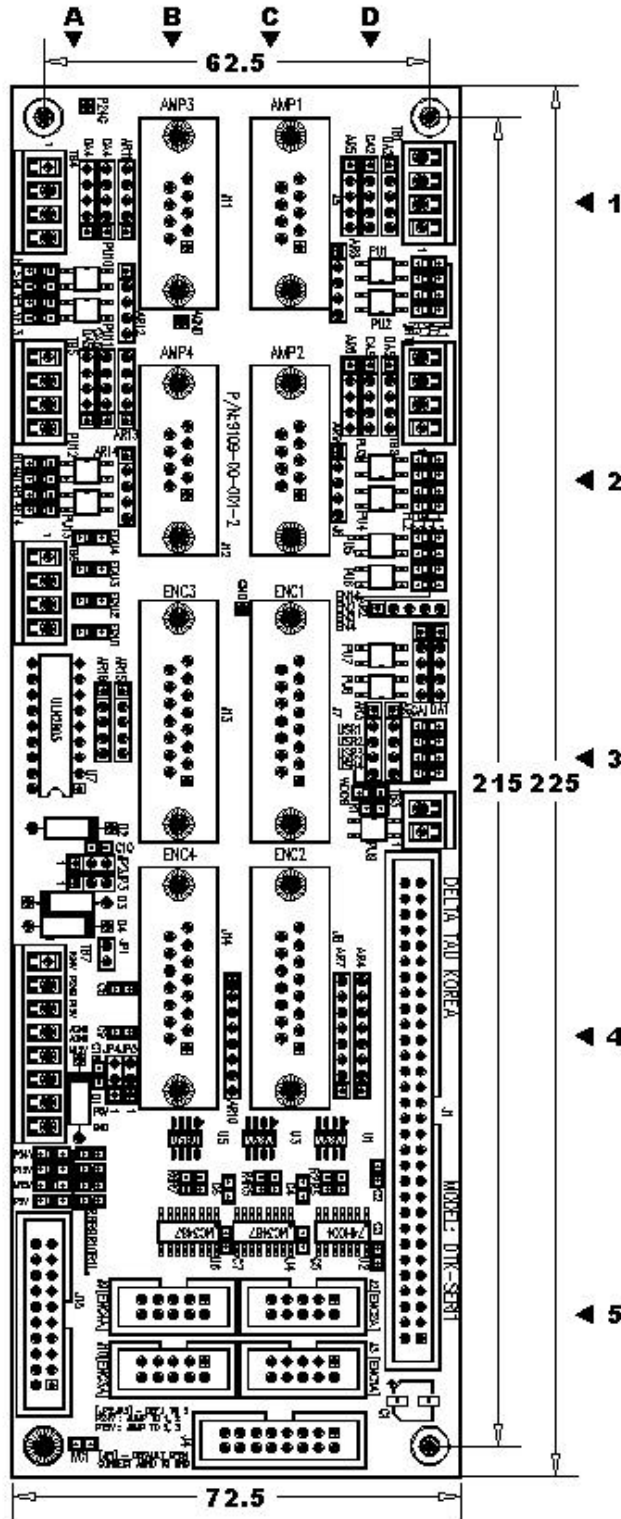


5. SERI1-Opt.5 : Rounded Ribbon Cable with Shield Wire

PMAC	JMACH	SERI1	J1	High Quality 60pin Rounded Ribbon
Cable	.		가 1.5m	.

III. SERI1

Dimension



JUMPER SETTING

**

가

JUMPER	LOC.	Description	DEFAULT	Note
JP1	A-4	Tie AGND and DGND	<div style="border: 1px solid black; display: inline-block; padding: 2px;">2 1</div> OPEN	
JP2	A-4	FLAG (+15V or +24V) 1-2 :+24V 2-3 :+15V	<div style="border: 1px solid black; display: inline-block; padding: 2px;">3 2 1</div> * 1-2 Jumper installed	JP2 JP3
JP3	A-4	FLAG (AGND or +24VGND) 1-2 :+24VGND 2-3 :AGND	<div style="border: 1px solid black; display: inline-block; padding: 2px;">3 2 1</div> * 1-2 Jumper installed	가
JP4	A-4	ENCODER (EXTERNAL OR INTERNAL) 1-2 :INT. power 2-3 :EXT. Power (Opt.2)	<div style="border: 1px solid black; display: inline-block; padding: 2px;">3 2 1</div> ** 1-2 Jumper installed	JP4 JP5
JP5	A-4	ENCODER (EXTERNAL OR INTERNAL) 1-2 :INT. power 2-3 :EXT. Power (Opt.2)	<div style="border: 1px solid black; display: inline-block; padding: 2px;">3 2 1</div> ** 1-2 Jumper installed	가

Note). * : +15V MODE TB7(POWER TERMINAL BLOCK) +24V

**: ENCODER TB7(POWER TERMINAL BLOCK) +24V

/

TB1 / TB2 / TB4 / TB5 (4pin) : 1~4 FLAG

1 (~4) FLAG +/- ,

PMAC2A PC/104 USERn

Common (:+24V GND)

TB3 (2pin) : Watchdog Error

PMAC Watchdog error Opto -coupler
 . (: Watchdog error가 PMAC .
 . .)

TB6 (4pin) : EQU

가 (nsec) EQU
 xxxmA
 SERI1 PMAC2A PC/104 가 .

TB7 (8pin) : DC

DC

*

- 1) +5V : ISA/PCI, PC/104 PC PMAC 5V
 PC Standalone Encoder Isolation Option
- 2) +/- -12V : +/- -10V
- 3) 24V : FLAG Amp Enable (+12V)
 Isolation

AMP 1~4 (9 pin Dsub Connector) :

(+/- -10V , Amp Enable, Amp Fault) . PMAC2A
 PC/104 Pulse/Dir .

ENC 1~4 (15 pin Dsub Connector) : Encoder

/

TB 1[D-1]

Pin	Symbol	Function	Description	Note
-----	--------	----------	-------------	------

1	P_LIM1	Input	Positive Limit	LOW IS TRUE
2	N_LIM1	Input	Negative Limit	LOW IS TRUE
3	HOME1	Input	Home Flag	LOW IS TRUE
4	USER1	Input	User Flag	LOW IS TRUE (PMAC2A PC/104)

TB 2[D-2]

Pin	Symbol	Function	Description	Note
1	P_LIM2	Input	Positive Limit	LOW IS TRUE
2	N_LIM2	Input	Negative Limit	LOW IS TRUE
3	HOME2	Input	Home Flag	LOW IS TRUE
4	USER2	Input	User Flag	LOW IS TRUE (PMAC2A PC/104)

TB 3[D-3]

Pin	Symbol	Function	Description	Note
1	Watch_DOG	Output	Watch Dog Error	
2	Watch_DOG	Output	Watch Dog Error_Return	

TB 4[A-1]

Pin	Symbol	Function	Description	Note
1	P_LIM3	Input	Positive Limit	LOW IS TRUE
2	N_LIM3	Input	Negative Limit	LOW IS TRUE
3	HOME3	Input	Home Flag	LOW IS TRUE
4	USER3	Input	User Flag	LOW IS TRUE (PMAC2A PC/104)

TB 5[A-2]

Pin	Symbol	Function	Description	Note
1	P_LIM4	Input	Positive Limit	LOW IS TRUE
2	N_LIM4	Input	Negative Limit	LOW IS TRUE
3	HOME4	Input	Home Flag	LOW IS TRUE
4	USER4	Input	User Flag	LOW IS TRUE (PMAC2A PC/104)

TB 6[A-3]

Pin	Symbol	Function	Description	Note
1	EQU1	Output	Position Compare Output 1	LOW IS TRUE (PMAC2A PC/104)

2	EQU2	Output	Position Compare Output 2	LOW IS TRUE (PMAC2A PC/104)
3	EQU3	Output	Position Compare Output 3	LOW IS TRUE (PMAC2A PC/104)
4	EQU4	Output	Position Compare Output 4	LOW IS TRUE (PMAC2A PC/104)

TB 7[A-4]

Pin	Symbol	Function	Description	Note
1	P24V	Input	+24V SUPPLY	FLAG / Amp Enable
2	P24G	Input	P24V COMMON	
3	+15V	Input	+15V SUPPLY	(PC/104 DAC)
4	AGND	Input	+/- 15V COMMON	
5	AGND	Input	+/- 15V COMMON	
6	-15V	Input	-15V SUPPLY	
7	+5VDC	Input / Output	+5V SUPPLY	1) Standalone 2) ENCODER (JUMPER SETTING)
8	DGND	Input / Output	+5VDC COMMON	Jumper JP4/5 1-2 PC BUS 가.

AMP1(PCB_Side : DSUB 9pin Female ,Cable_Side DSUB 9pin Male) [C -1]

Pin	Symbol	Function	Description	Note
1	DAC1	Output	ANA.OUT POS.1	+/- 10V TO AGND
2	PUL1/	Output	PULSE	FOR STEPPER (PMAC2A PC/104)
3	AGND	Output	ANALOG COMMON	
4	EENA1	Output	AMP ? ENA1	LOW IS TRUE
5	EFAULT1	Input	AMP-FAULT1	LOW IS TRUE
6	DAC1/ (+5V Output)	Output	ANA.OUT NEG.1	+/- 10V TO AGND (1)
7	P24G	Output	P24V COMMON	
8	P24V	Output	+24V SUPPLY	
9	DIR1/	Output	DIRECTION	FOR STEPPER (PMAC2A PC/104)

(1) : PMAC2A PC/104 Pulse

+5V

AMP2(PCB_Side : DSUB 9pin Female ,Cable_Side DSUB 9pin Male)[C-2]

Pin	Symbol	Function	Description	Note
1	DAC2	Output	ANA.OUT POS.2	+/- 10V TO AGND
2	PUL2/	Output	PULSE	FOR STEPPER (PMAC2A PC104)
3	AGND	Output	ANALOG COMMON	
4	EENA2	Output	AMP ? ENA2	LOW IS TRUE
5	EFAULT2	Input	AMP-FAULT2	LOW IS TRUE
6	DAC1/ (+5V Output)	Output	ANA.OUT NEG.1	+/- 10V TO AGND (1)
7	P24G	Output	P24V COMMON	
8	P24V	Output	+24V SUPPLY	
9	DIR2/	Output	DIRECTION	FOR STEPPER (PMAC2A PC104)

(1) : PMAC2A PC/104 Pulse +5V

AMP3(PCB_Side : DSUB 9pin Female ,Cable_Side DSUB 9pin Male)[B-1]

Pin	Symbol	Function	Description	Note
1	DAC3	Output	ANA.OUT POS.3	+/- 10V TO AGND
2	PUL3/	Output	PULSE	FOR STEPPER (PMAC2A PC/104)
3	AGND	Output	ANALOG COMMON	
4	EENA3	Output	AMP ? ENA3	LOW IS TRUE
5	EFAULT3	Input	AMP-FAULT3	LOW IS TRUE
6	DAC1/ (+5V Output)	Output	ANA.OUT NEG.1	+/- 10V TO AGND (1)
7	P24G	Output	P24V COMMON	
8	P24V	Output	+24V SUPPLY	
9	DIR3/	Output	DIRECTION	FOR STEPPER (PMAC2A PC/104)

(1) : PMAC2A PC/104 Pulse +5V

AMP4(PCB_Side : DSUB 9pin Female ,Cable_Side DSUB 9pin Male)[B-2]

Pin	Symbol	Function	Description	Note
1	DAC4	Output	ANA.OUT POS.4	+/- 10V TO AGND
2	PUL4/	Output	PULSE	FOR STEPPER (PMAC2A PC/104)
3	AGND	Output	ANALOG COMMON	
4	EENA4	Output	AMP ? ENA4	LOW IS TRUE
5	EFAULT4	Input	AMP-FAULT4	LOW IS TRUE

6	DAC1/ (+5V Output)	Output	ANA.OUT NEG.1	+/- 10V TO AGND (1)
7	P24G	Output	P24V COMMON	
8	P24V	Output	+24V SUPPLY	
9	DIR4/	Output	DIRECTION	FOR STEPPER (PMAC2A PC/104)

(1) : PMAC2A PC/104 Pulse

+5V

ENC1(PCB_Side : DSUB 15pin Female ,Cable_Side DSUB 15pin Male)[C -3]

Pin	Symbol	Function	Description	Note
1	+5VDC	Output	+5V POWER	FOR ENCODER
2	DGND	Output	DIGITAL COMMON	
3	CHA1	Input	ENCODER A CH.POSITIVE	CHAN #1
4	CHB1	Input	ENCODER A CH.POSITIVE	CHAN #1
5	CHC1	Input	ENCODER A CH.POSITIVE	CHAN #1
6	+5VA	Output	ENCODER	ENCODER
7	N.C		Unused	
8	DGND	Output	DIGITAL COMMON	
9	+5VDC	Output	+5V POWER	FOR ENCODER
10	DGND	Output	DIGITAL COMMON	
11	CHA1/	Input	ENCODER A CH.NEGATIVE	CHAN #1
12	CHB1/	Input	ENCODER A CH.NEGATIVE	CHAN #1
13	CHC1/	Input	ENCODER A CH.NEGATIVE	CHAN #1
14	N.C		Unused	
15	+5VA GND	Output	+5VA GND	ENCODER

ENC2(PCB_Side : DSUB 15pin Female ,Cable_Side DSUB 15pin Male)[C -4]

Pin	Symbol	Function	Description	Note
1	+5VDC	Output	+5V POWER	FOR ENCODER
2	DGND	Output	DIGITAL COMMON	
3	CHA2	Input	ENCODER A CH.POSITIVE	CHAN #2
4	CHB2	Input	ENCODER A CH.POSITIVE	CHAN #2
5	CHC2	Input	ENCODER A CH.POSITIVE	CHAN #2
6	+5VA	Output	ENCODER	ENCODER
7	N.C		Unused	
8	N.C		Unused	
9	+5VDC	Output	+5V POWER	FOR ENCODER

10	DGND	Output	DIGITAL COMMON	
11	CHA2/	Input	ENCODER A CH.NEGATIVE	CHAN #2
12	CHB2/	Input	ENCODER A CH.NEGATIVE	CHAN #2
13	CHC2/	Input	ENCODER A CH.NEGATIVE	CHAN #2
14	N.C		Unused	N.C
15	+5VA GND	Output	+5VA GND	ENCODER

ENC3(PCB_Side : DSUB 15pin Female ,Cable_Side DSUB 15pin Male)[B-3]

Pin	Symbol	Function	Description	Note
1	+5VDC	Output	+5V POWER	FOR ENCODER
2	DGND	Output	DIGITAL COMMON	
3	CHA3	Input	ENCODER A CH.POSITIVE	CHAN #3
4	CHB3	Input	ENCODER A CH.POSITIVE	CHAN #3
5	CHC3	Input	ENCODER A CH.POSITIVE	CHAN #3
6	+5VA	Output	ENCODER	ENCODER
7	N.C		Unused	
8	DGND	Output	DIGITAL COMMON	
9	+5VDC	Output	+5V POWER	FOR ENCODER
10	DGND	Output	DIGITAL COMMON	
11	CHA3/	Input	ENCODER A CH.NEGATIVE	CHAN #3
12	CHB3/	Input	ENCODER A CH.NEGATIVE	CHAN #3
13	CHC3/	Input	ENCODER A CH.NEGATIVE	CHAN #3
14	N.C		Unused	N.C
15	+5VA GND	Output	+5VA GND	ENCODER

ENC4(PCB_Side : DSUB 15pin Female ,Cable_Side DSUB 15pin Male)[B-4]

Pin	Symbol	Function	Description	Note
1	+5VDC	Output	+5V POWER	FOR ENCODER
2	DGND	Output	DIGITAL COMMON	
3	CHA4	Input	ENCODER A CH.POSITIVE	CHAN #4
4	CHB4	Input	ENCODER A CH.POSITIVE	CHAN #4
5	CHC4	Input	ENCODER A CH.POSITIVE	CHAN #4
6	+5VA	Output	ENCODER	ENCODER
7	N.C		Unused	N.C
8	N.C		Unused	N.C

9	+5VDC	Output	+5V POWER	FOR ENCODER
10	DGND	Output	DIGITAL COMMON	
11	CHA4/	Input	ENCODER A CH.NEGATIVE	CHAN #4
12	CHB4/	Input	ENCODER A CH.NEGATIVE	CHAN #4
13	CHC4/	Input	ENCODER A CH.NEGATIVE	CHAN #4
14	N.C		Unused	N.C
15	+5VA GND	Output	+5VA GND	ENCODER

J1 : (60 pin IDC Header)

PMAC1 Hardware Reference Manual JMACH Pin
SERI1 Opt.1 piggyback board

J15 : (20 pin IDC Header)

SERI1 Opt.1 piggyback board

J2, J3, J9, J10 : (10 pin IDC Header)

ACC-8D (ACC-8D Opt.4, Opt.2, Opt.9)

J4 : (16 pin IDC Header)

ACC-8D (ACC-8D Opt.4, Opt2, Opt.9) Amp Enable DAC

DIP

SERI1 3 DIP (SW 1/2/3)가 가 ON , Opt.2 (On-board
Isolation Circuit) OFF

LED Display

HLn, MLn, PLn, FLn (n=1~4) : , Minus Limt, Plus Limit, Amp Fault

EN1(~4) : Amp Enable /

USER1(~4) : PMAC2A PC/104 USER Flag

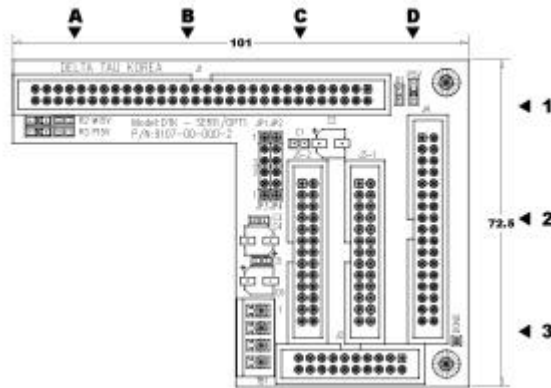
EQU1(~4) : PMAC2A PC/104 EQU

: P24V(24VDC), P15V(+15VDC), M15V(-15VDC), P5V (5VDC)

WDOG : PMAC Watchdog Error가

IV. On-board option

OPT.1 : PMAC2A PC/104 Interface board



LED Display

+15V, -15V, 5V

Jumper

JP1 : (1)

1-2	2-3	SER11	<u>AMP1 6 PIN</u> (DAC)
+5VDC	PMAC2A PC/104	Pulse	
Pulse	Opto-coupler		

JP2, JP3, JP4 : (2/3/4)

1-2	2-3	SER11	<u>AMP2(3/4) 6 PIN</u> (DAC)
+5VDC	PMAC2A PC/104	Pulse	
Pulse	Opto-coupler		

Analog Input (4 pin)

PMAC2A PC/104

가

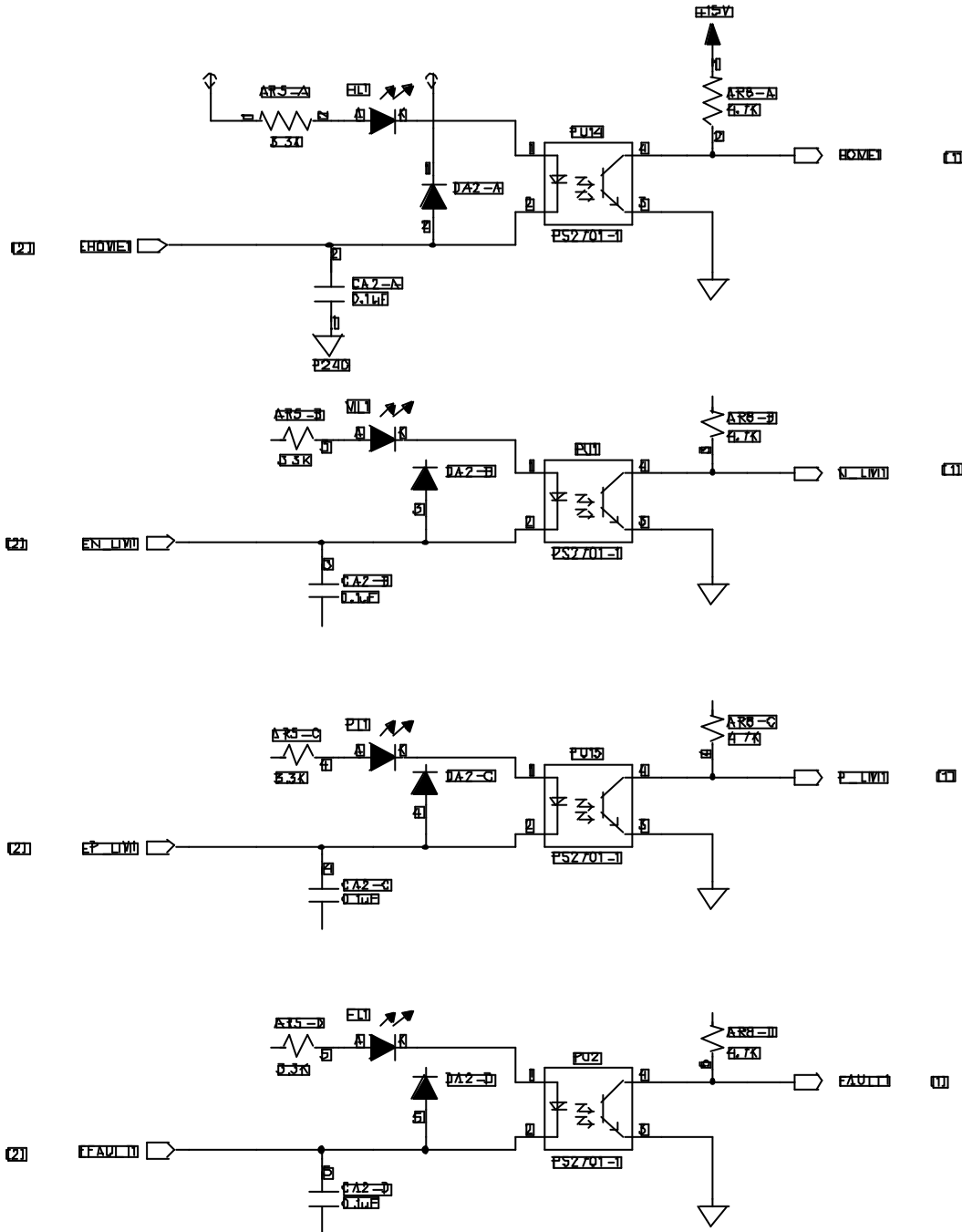
Pin	Symbol	Function	Description	Note
1	ADC1_IN	Input	1	

2	GND	Input	Negative Limit	
3	GND	Input	Home Flag	
4	ADC2_IN	Input	2	

OPT.2 : On-board Encoder Isolation Circuit

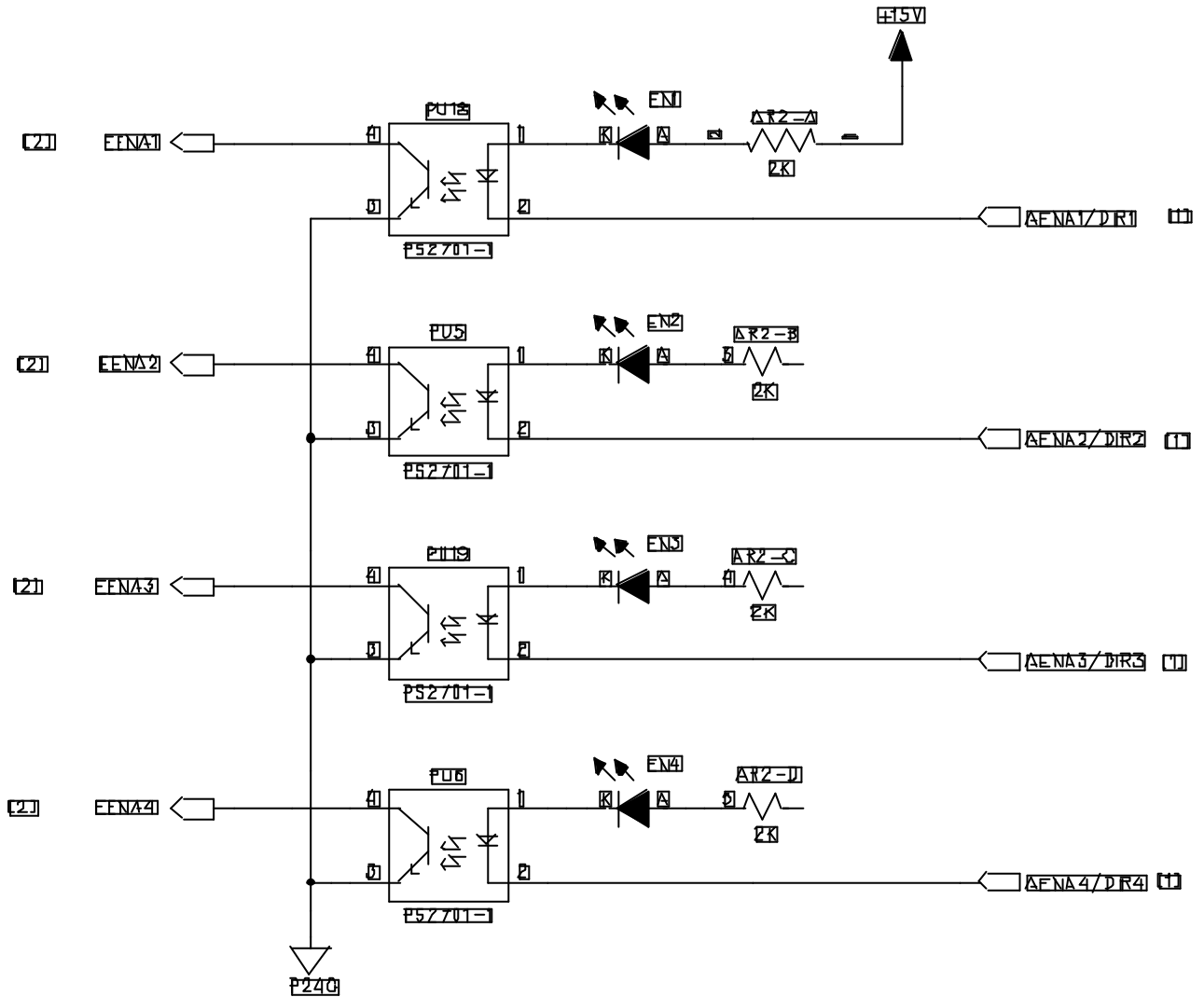
SER11 High Speed Opto-coupler
 가 10Mhz Bandwidth (4 40 MHz).
 SER11 가 , ,
 (EDM, Laser /)
 5V . (PMAC)
 DIP 가 OFF .
 PMAC Standalone ,

Input Circuit (Flag - Home ,+ Limit, -Limit, Amp Fault)



Limit Switch Normal Close Type Switch

AMP Enable Circuit



SERVO DRIVE)

