GENI-16 Board H/W Manual

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Rev. 1.1

(Preliminary)

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Manual Revision History

-2008년 7월 - 초판 작성

-2009년 11월 – 결선 도면 추가

I. 제품개요

GENI (GENeral IO board for PMAC family, P/N:9109-00-000-x)는 16/16 IO Opto-isolation 보드입니다. PMAC 보드의 IO port 사용시에 외부 IO에 공급되는 전원(24VDC)을 PMAC 메인보드의 다른 전원과 분리하는 기능을 합니다.
외부 입력측은 GND (24V전원의) Common으로 구성되어야 하며, 출력은 +24V Common으로 구성되어야하니다. 출력포트는 ULN2803(Darlington TR module)을 사용하여 각 출력접점별로 100mA의 부하를 직접 연결할 수 있습니다.

{주의마크}
특정 모델의 PMAC 출력포트를 사용하는 경우 전원투입시 (하드웨어적인)출력의 초기값이 1로 설정됩니다. PMAC PLC 프로그램에서 이들을 0으로 설정하는 Routine을 작성해 주십시오. 이러한 경우를 위해서 GENI 보드의 출력은 전원투입후 약 2초 경과후부터 정상 동작합니다.

적용 가능 PMAC model 및 IO Port

1. (Turbo) PMAC1 전체 모델 (ISA, PCI 포함) :
   JOPTO 포트 : 8/8 IO
   JTHW 포트 : 8/8 IO
   (JTHW를 사용하는 기존의 악세서리(ACC-34 ACC-8D Opt.9..)를 사용하는 경우 이 포트는 GENI보드와 사용할 수 없습니다.)

2. (Turbo) PMAC2 전모델 (PMAC2A PC/104) 포함
   JIO (32점 IO) : 입출력 각 16 Point로 설정하여 사용합니다.
   JTHW 포트 : 8/8 IO
   (JTHW를 사용하는 기존의 악세서리(ACC-34 ACC-8D Opt.9..)를 사용하는 경우 이 포트는 GENI보드와 사용할 수 없습니다.)

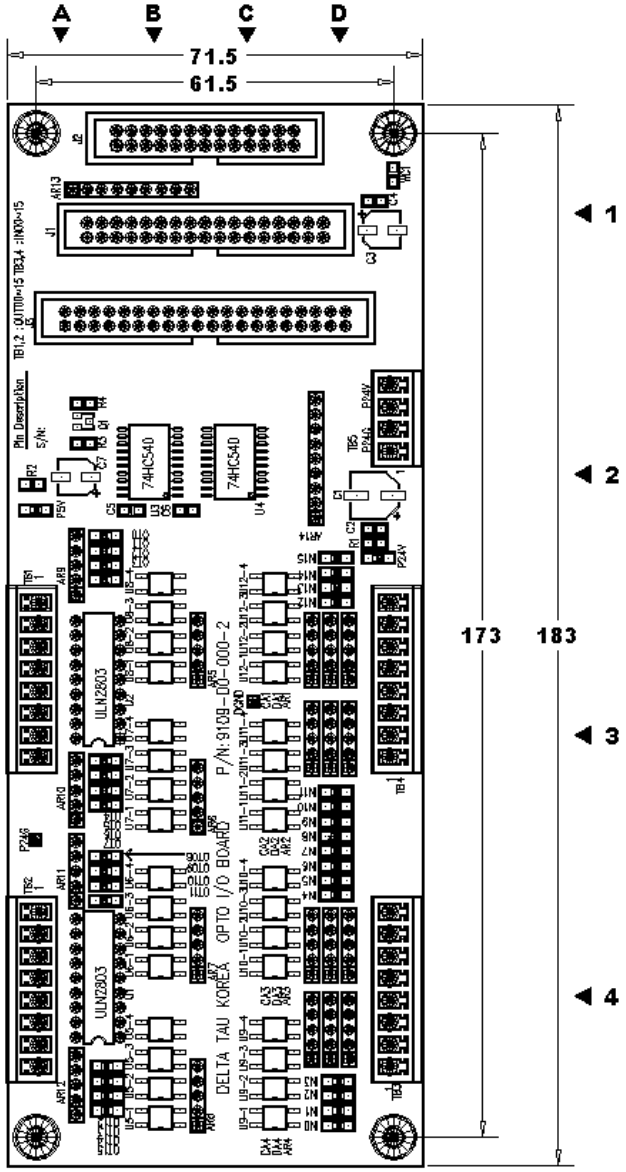
3.UMAC : ACC-5E의 JIO 포트 (입출력 각 16 Point로 설정하여 사용합니다.)

전기적 사양

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

II. GENI 구성

보드 Dimension



콘넥터 / 터미널 블록 구성

J1 (34 Pin IDC Header)

PMAC 메인보드의 JOPTO 포트와 연결됩니다. PMAC2A PC/104를 제외한 PMAC2 보드 사용시에는 이 포트를 사용하지 않습니다.

J2 (26 Pin IDC Header)

PMAC 메인보드의 JTHW 포트와 연결됩니다. ACC-8D Opt.4/Opt.9, ACC-34계열 IO보드등과 같이 JTHW 포트를 사용하는 악세서리를 사용하는 경우는 이 포트를 사용할 수 없습니다.

J3 (40 Pin IDC Header)

PMAC2 계열의 JIO 포트와 연결되는 콘넥터입니다. JIO포트는 32점 IO로 구성되며 소프트웨어 설정으로 Byte 단위로 입출력을 지정합니다. GENI 보드와 사용시에는 IO0~IO15 (16점) 를 입력, IO16~IO31(16점)을 출력으로 지정하여 사용해야 합니다. 다른 구성이 필요한 경우는 당사로 문의바랍니다.

TB5 (4 Pin 터미널 블록) : +24VDC 전원 공급 단자

입출력 장치에 공급되는 +24V 전원을 공급합니다. 입출력측에 연결된 부하의 소비전류를 계산하여 충분한 전원을 사용해 주십시오.

TB1 (8 Pin 터미널 블록) : Output 0 ~ Output 7

JTHW 출력기능 및 JIO의 bit 16~23 에 연결된 포트입니다. 출력 0~7번을 연결합니다.

TB2 (8 Pin 터미널 블록) : Output 8 ~ Output 15

JOPTO 출력기능 및 JIO의 bit 24~31 에 연결된 포트입니다. 출력 8~16번을 연결합니다.

TB3 (8 Pin 터미널 블록) : Input 0 ~ Input 7

JTHW 입력포트 및 JIO의 bit 0~7 에 연결된 포트입니다. 입력 0~7번을 연결합니다.

TB4 (8 Pin 터미널 블록) : Input 8 ~ Input15

JOPTO 입력포트 및 JIO의 bit 8~15 에 연결된 포트입니다. 입력 8~15번을 연결합니다.

터미널블록 / 콘넥터 신호 세부 설명

TB 5

Pin	Symbol	Function	Description	Note
1	GND	Input		
2	GND	Input		
3	+24V	Input		
4	+24V	Input		

TB 1

Pin	Symbol	Function	Description	Note
1	OUT0	Output Bit 0		
2	OUT1	Output Bit 1		
3	OUT2	Output Bit 2		JTHW Output Port
4	OUT3	Output Bit 3		
5	OUT4	Output Bit 4		JIO Bit 16 ~ 23
6	OUT5	Output Bit 5		
7	OUT6	Output Bit 6		
8	OUT7	Output Bit 7		

TB 2

Pin	Symbol	Function	Description	Note
1	OUT8	Output Bit 8		
2	OUT9	Output Bit 9		
3	OUT10	Output Bit 10		JOPTO Output Port
4	OUT11	Output Bit 11		
5	OUT12	Output Bit 12		JIO Bit 24 ~ 31
6	OUT13	Output Bit 13		
7	OUT14	Output Bit 14		
8	OUT15	Output Bit 15		

TB 3

Pin	Symbol	Function	Description	Note
1	IN0	Input Bit 0		
2	IN1	Input Bit 1		
3	IN2	Input Bit 2		JTHW Input Port
4	IN3	Input Bit 3		
5	IN4	Input Bit 4		JIO Bit 0 ~ 7
6	IN5	Input Bit 5		
7	IN6	Input Bit 6		
8	IN7	Input Bit 7		

TB 4

Pin	Symbol	Function	Description	Note
1	IN8	Input Bit 8		
2	IN9	Input Bit 9		
3	IN10	Input Bit 10		JOPTO Input Port
4	IN11	Input Bit 11		
5	IN12	Input Bit 12		JIO Bit 8 ~ 15
6	IN13	Input Bit 13		
7	IN14	Input Bit 14		
8	IN15	Input Bit 15		

III. SOFTWARE SETUP

PMAC2A PC/104

1) JOPTO

ACC-1P with jumper E6 on position 1-2

M0->Y:$C080,0 ; Digital Output M00
M1->Y:$C080,1 ; Digital Output M01
M2->Y:$C080,2 ; Digital Output M02
M3->Y:$C080,3 ; Digital Output M03
M4->Y:$C080,4 ; Digital Output M04
M5->Y:$C080,5 ; Digital Output M05
M6->Y:$C080,6 ; Digital Output M06
M7->Y:$C080,7 ; Digital Output M07
M8->Y:$C080,8 ; Digital Input MI0
M9->Y:$C080,9 ; Digital Input MI1
M10->Y:$C080,10 ; Digital Input MI2
M11->Y:$C080,11 ; Digital Input MI3
M12->Y:$C080,12 ; Digital Input MI4
M13->Y:$C080,13 ; Digital Input MI5
M14->Y:$C080,14 ; Digital Input MI6
M15->Y:$C080,15 ; Digital Input MI7
M32->X:$C080,0,8 ; Direction Control (1=output, 0 = input)
M34->X:$C080,8,8 ; Direction Control (1=output, 0 = input)
M40->X:$C084,0,24 ; Inversion control (0 = 0V, 1 = 5V)
M42->Y:$C084,0,24 ; J7 port data type control (1 = I/O)
;In order to properly setup the digital outputs an initialization PLC must be written scanning through once
;on power-up/reset, then disabling itself:
OPEN PLC1 CLEAR
M32=$FF ;BITS 0-8 are assigned as output
M34=$0 ;BITS 9-16 are assigned as input
M40=$FF00 ;Define inputs and outputs voltages
M42=$FFFF ;All lines are I/O type
DIS PLC1 ;Disable PLC1 (scanning through once on power-up/reset)
CLOSE

; *Note* After loading this program you must set I5=2 or 3 and ENABLE PLC 1.

ACC-2P with jumper E5 in position 2-3

M0->Y:$C0C0,0 ; Digital Output M00
M1->Y:$C0C0,1 ; Digital Output M01
M2->Y:$C0C0,2 ; Digital Output M02
M3->Y:$C0C0,3 ; Digital Output M03
M4->Y:$C0C0,4 ; Digital Output M04
M5->Y:$C0C0,5 ; Digital Output M05
M6->Y:$C0C0,6 ; Digital Output M06
M7->Y:$C0C0,7 ; Digital Output M07
M8->Y:$C0C0,8 ; Digital Input MI0
M9->Y:$C0C0,9 ; Digital Input MI1
M10->Y:$C0C0,10 ; Digital Input MI2
M11->Y:$C0C0,11 ; Digital Input MI3
M12->Y:$C0C0,12 ; Digital Input MI4
M13->Y:$C0C0,13 ; Digital Input MI5
M14->Y:$C0C0,14 ; Digital Input MI6
M15->Y:$C0C0,15 ; Digital Input MI7
M32->X:$C0C0,0,8 ; Direction Control (1=output, 0 = input)
M34->X:$C0C0,8,8 ; Direction Control (1=output, 0 = input)
M40->X:$C0C4,0,24 ; Inversion control (0 = 0V, 1 = 5V)
M42->Y:$C0C4,0,24 ; JI/O port data type control (1 = I/O)
;In order to properly setup the digital outputs an initialization PLC must be written scanning through once
;on power-up/reset, then disabling itself:
OPEN PLC1 CLEAR
M32=$FF ;BITS 0-8 are assigned as output
M34=$0 ;BITS 9-16 are assigned as input
M40=$FFFF ;Define inputs and outputs voltages
M42=$FFFF ;All lines are I/O type
DIS PLC1 ;Disable PLC1 (scanning through once on power-up/reset)
CLOSE
;Note After loading this program you must set I5=2 or 3 and ENABLE PLC 1

2) JTHW

ACC-1P with Jumper E6 in Position 1-2

M40->Y:$C082,8,1 ; SEL0 Output
M41->Y:$C082,9,1 ; SEL1 Output
M42->Y:$C082,10,1 ; SEL2 Output
M43->Y:$C082,11,1 ; SEL3 Output
M44->Y:$C082,12,1 ; SEL4 Output
M45->Y:$C082,13,1 ; SEL5 Output
M46->Y:$C082,14,1 ; SEL6 Output

M47->Y:$C082,15,1 ; SEL7 Output

M48->Y:$C082,8,8,U ; SEL0-7 Outputs treated as a byte

M50->Y:$C082,0,1 ; DAT0 Input

M51->Y:$C082,1,1 ; DAT1 Input

M52->Y:$C082,2,1 ; DAT2 Input

M53->Y:$C082,3,1 ; DAT3 Input

M54->Y:$C082,4,1 ; DAT4 Input

M55->Y:$C082,5,1 ; DAT5 Input

M56->Y:$C082,6,1 ; DAT6 Input

M57->Y:$C082,7,1 ; DAT7 Input

M58->Y:$C082,0,8,U ; DAT0-7 Inputs treated as a byte

ACC-2P with Jumper E5 in Position 2-3

M40->Y:$C0C2,8,1 ; SEL0 I/O Line

M41->Y:$C0C2,9,1 ; SEL1 I/O Line

M42->Y:$C0C2,10,1 ; SEL2 I/O Line

M43->Y:$C0C2,11,1 ; SEL3 I/O Line

M44->Y:$C0C2,12,1 ; SEL4 I/O Line

M45->Y:$C0C2,13,1 ; SEL5 I/O Line

M46->Y:$C0C2,14,1 ; SEL6 I/O Line

M47->Y:$C0C2,15,1 ; SEL7 I/O Line

M48->Y:$C0C2,8,8,U ; SEL0-7 I/O Lines treated as a byte

M50->Y:$C0C2,0,1 ; DAT0 I/O Line

M51->Y:$C0C2,1,1 ; DAT1 I/O Line

M52->Y:$C0C2,2,1 ; DAT2 I/O Line

M53->Y:$C0C2,3,1 ; DAT3 I/O Line

M54->Y:$C0C2,4,1 ; DAT4 I/O Line

M55->Y:$C0C2,5,1 ; DAT5 I/O Line

M56->Y:$C0C2,6,1 ; DAT6 I/O Line

M57->Y:$C0C2,7,1 ; DAT7 I/O Line

M58->Y:$C0C2,0,8,U ; DAT0-7 I/O Lines treated as a byte

PMAC1 Type (ISA, PCI) : Universal Lite, PC (Mini-PMAC은 별도)

1) JOPTO

M1->Y:$FFC2,8,1 ; Machine Output 1
M2->Y:$FFC2,9,1 ; Machine Output 2
M3->Y:$FFC2,10,1 ; Machine Output 3
M4->Y:$FFC2,11,1 ; Machine Output 4
M5->Y:$FFC2,12,1 ; Machine Output 5
M6->Y:$FFC2,13,1 ; Machine Output 6
M7->Y:$FFC2,14,1 ; Machine Output 7
M8->Y:$FFC2,15,1 ; Machine Output 8
M9->Y:$FFC2,8,8,U ; Machine Outputs 1-8 treated as byte
M11->Y:$FFC2,0,1 ; Machine Input 1
M12->Y:$FFC2,1,1 ; Machine Input 2
M13->Y:$FFC2,2,1 ; Machine Input 3
M14->Y:$FFC2,3,1 ; Machine Input 4
M15->Y:$FFC2,4,1 ; Machine Input 5
M16->Y:$FFC2,5,1 ; Machine Input 6
M17->Y:$FFC2,6,1 ; Machine Input 7
M18->Y:$FFC2,7,1 ; Machine Input 8
M19->Y:$FFC2,0,8,U ; Machine Inputs 1-8 treated as byte

2)JTHW

M40->Y:$FFC1,8,1 ; SEL0 Output
M41->Y:$FFC1,9,1 ; SEL1 Output
M42->Y:$FFC1,10,1 ; SEL2 Output
M43->Y:$FFC1,11,1 ; SEL3 Output
M44->Y:$FFC1,12,1 ; SEL4 Output
M45->Y:$FFC1,13,1 ; SEL5 Output
M46->Y:$FFC1,14,1 ; SEL6 Output
M47->Y:$FFC1,15,1 ; SEL7 Output
M48->Y:$FFC1,8,8,U ; SEL0-7 Outputs treated as a byte
M50->Y:$FFC1,0,1 ; DAT0 Input
M51->Y:$FFC1,1,1 ; DAT1 Input
M52->Y:$FFC1,2,1 ; DAT2 Input
M53->Y:$FFC1,3,1 ; DAT3 Input
M54->Y:$FFC1,4,1 ; DAT4 Input
M55->Y:$FFC1,5,1 ; DAT5 Input
M56->Y:$FFC1,6,1 ; DAT6 Input
M57->Y:$FFC1,7,1 ; DAT7 Input
M58->Y:$FFC1,0,8,U ; DAT0-7 Inputs treated as a byte

Turbo PMAC1 PC

1)JOPTO

M1->Y:$078802,8,1 ; Machine Output 1
M2->Y:$078802,9,1 ; Machine Output 2
M3->Y:$078802,10,1 ; Machine Output 3
M4->Y:$078802,11,1 ; Machine Output 4
M5->Y:$078802,12,1 ; Machine Output 5
M6->Y:$078802,13,1 ; Machine Output 6
M7->Y:$078802,14,1 ; Machine Output 7
M8->Y:$078802,15,1 ; Machine Output 8
M9->Y:$078802,8,8,U ; Machine Outputs 1-8 treated as byte
M11->Y:$078802,0,1 ; Machine Input 1
M12->Y:$078802,1,1 ; Machine Input 2
M13->Y:$078802,2,1 ; Machine Input 3
M14->Y:$078802,3,1 ; Machine Input 4
M15->Y:$078802,4,1 ; Machine Input 5
M16->Y:$078802,5,1 ; Machine Input 6
M17->Y:$078802,6,1 ; Machine Input 7
M18->Y:$078802,7,1 ; Machine Input 8
M19->Y:$078802,0,8,U ; Machine Inputs 1-8 treated as byte

2)JTHW

M40->Y:$078801,8,1 ; SEL0 Output
M41->Y:$078801,9,1 ; SEL1 Output
M42->Y:$078801,10,1 ; SEL2 Output
M43->Y:$078801,11,1 ; SEL3 Output
M44->Y:$078801,12,1 ; SEL4 Output
M45->Y:$078801,13,1 ; SEL5 Output
M46->Y:$078801,14,1 ; SEL6 Output
M47->Y:$078801,15,1 ; SEL7 Output
M48->Y:$078801,8,8,U ; SEL0-7 Outputs treated as a byte
M50->Y:$078801,0,1 ; DAT0 Input
M51->Y:$078801,1,1 ; DAT1 Input
M52->Y:$078801,2,1 ; DAT2 Input
M53->Y:$078801,3,1 ; DAT3 Input
M54->Y:$078801,4,1 ; DAT4 Input
M55->Y:$078801,5,1 ; DAT5 Input
M56->Y:$078801,6,1 ; DAT6 Input
M57->Y:$078801,7,1 ; DAT7 Input
M58->Y:$078801,0,8,U ; DAT0-7 Inputs treated as a byte

PMAC2 Type (ISA, PCI) : Lite, PC

1) JIO

M0->Y:$C080,0 ; I/O00 Data Line; J3 Pin 1
M1->Y:$C080,1 ; I/O01 Data Line; J3 Pin 2
M2->Y:$C080,2 ; I/O02 Data Line; J3 Pin 3
M3->Y:$C080,3 ; I/O03 Data Line; J3 Pin 4
M4->Y:$C080,4 ; I/O04 Data Line; J3 Pin 5
M5->Y:$C080,5 ; I/O05 Data Line; J3 Pin 6
M6->Y:$C080,6 ; I/O06 Data Line; J3 Pin 7
M7->Y:$C080,7 ; I/O07 Data Line; J3 Pin 8
M8->Y:$C080,8 ; I/O08 Data Line; J3 Pin 9
M9->Y:$C080,9 ; I/O09 Data Line; J3 Pin 10
M10->Y:$C080,10 ; I/O10 Data Line; J3 Pin 11
M11->Y:$C080,11 ; I/O11 Data Line; J3 Pin 12
M12->Y:$C080,12 ; I/O12 Data Line; J3 Pin 13
M13->Y:$C080,13 ; I/O13 Data Line; J3 Pin 14
M14->Y:$C080,14 ; I/O14 Data Line; J3 Pin 15
M15->Y:$C080,15 ; I/O15 Data Line; J3 Pin 16
M16->Y:$C080,16 ; I/O16 Data Line; J3 Pin 17
M17->Y:$C080,17 ; I/O17 Data Line; J3 Pin 18
M18->Y:$C080,18 ; I/O18 Data Line; J3 Pin 19
M19->Y:$C080,19 ; I/O19 Data Line; J3 Pin 20
M20->Y:$C080,20 ; I/O20 Data Line; J3 Pin 21
M21->Y:$C080,21 ; I/O21 Data Line; J3 Pin 22
M22->Y:$C080,22 ; I/O22 Data Line; J3 Pin 23
M23->Y:$C080,23 ; I/O23 Data Line; J3 Pin 24
M24->Y:$C081,0 ; I/O24 Data Line; J3 Pin 25
M25->Y:$C081,1 ; I/O25 Data Line; J3 Pin 26
M26->Y:$C081,2 ; I/O26 Data Line; J3 Pin 27
M27->Y:$C081,3 ; I/O27 Data Line; J3 Pin 28
M28->Y:$C081,4 ; I/O28 Data Line; J3 Pin 29
M29->Y:$C081,5 ; I/O29 Data Line; J3 Pin 30
M30->Y:$C081,6 ; I/O30 Data Line; J3 Pin 31
M31->Y:$C081,7 ; I/O31 Data Line; J3 Pin 32
M32->X:$C080,0,8 ; Direction control for I/O00 to I/O07
M33->Y:$E800,0 ; Buffer direction control for I/O00 to I/O07
M34->X:$C080,8,8 ; Direction control for I/O08 to I/O15
M35->Y:$E800,1 ; Buffer direction control for I/O08 to I/O15
M36->X:$C080,16,8 ; Direction control for I/O16 to I/O23
M37->Y:$E800,2 ; Buffer direction control for I/O16 to I/O23
M38->X:$C081,0,8 ; Direction control for I/O24 to I/O31
M39->Y:$E800,3 ; Buffer direction control for I/O24 to I/O31

2) JTHW

M40->Y:$C082,8 ; SEL0 Line; J2 Pin 4
M41->Y:$C082,9 ; SEL1 Line; J2 Pin 6
M42->Y:$C082,10 ; SEL2 Line; J2 Pin 8
M43->Y:$C082,11 ; SEL3 Line; J2 Pin 10
M44->Y:$C082,12 ; SEL4 Line; J2 Pin 12
M45->Y:$C082,13 ; SEL5 Line; J2 Pin 14
M46->Y:$C082,14 ; SEL6 Line; J2 Pin 16
M47->Y:$C082,15 ; SEL7 Line; J2 Pin 18
M48->Y:$C082,8,8,U ; SEL0-7 Lines treated as a byte
M50->Y:$C082,0 ; DAT0 Line; J2 Pin 3
M51->Y:$C082,1 ; DAT1 Line; J2 Pin 5
M52->Y:$C082,2 ; DAT2 Line; J2 Pin 7
M53->Y:$C082,3 ; DAT3 Line; J2 Pin 9
M54->Y:$C082,4 ; DAT4 Line; J2 Pin 11
M55->Y:$C082,5 ; DAT5 Line; J2 Pin 13
M56->Y:$C082,6 ; DAT6 Line; J2 Pin 15
M57->Y:$C082,7 ; DAT7 Line; J2 Pin 17
M58->Y:$C082,0,8,U ; DAT0-7 Lines treated as a byte
M60->X:$C082,0,8 ; Direction control for DAT0 to DAT7
M61->Y:$E800,4 ; Buffer direction control for DAT0 to DAT7, PCbus
;M61->Y:$E802,0 ; Buffer direction control for DAT0 to DAT7,; VMEbus
M62->X:$C080,8,8 ; Direction control for SEL0 to SEL7
M63->Y:$E800,5 ; Buffer direction control for SEL0 to SEL7, PCbus
;M63->Y:$E802,1 ; Buffer direction control for SEL0 to SEL7,; VMEbus

1) JIO

M0->Y:$078400,0 ; I/O00 Data Line; J3 Pin 1
M1->Y:$078400,1 ; I/O01 Data Line; J3 Pin 2
M2->Y:$078400,2 ; I/O02 Data Line; J3 Pin 3
M3->Y:$078400,3 ; I/O03 Data Line; J3 Pin 4
M4->Y:$078400,4 ; I/O04 Data Line; J3 Pin 5
M5->Y:$078400,5 ; I/O05 Data Line; J3 Pin 6
M6->Y:$078400,6 ; I/O06 Data Line; J3 Pin 7
M7->Y:$078400,7 ; I/O07 Data Line; J3 Pin 8
M8->Y:$078400,8 ; I/O08 Data Line; J3 Pin 9
M9->Y:$078400,9 ; I/O09 Data Line; J3 Pin 10
M10->Y:$078400,10 ; I/O10 Data Line; J3 Pin 11
M11->Y:$078400,11 ; I/O11 Data Line; J3 Pin 12
M12->Y:$078400,12 ; I/O12 Data Line; J3 Pin 13
M13->Y:$078400,13 ; I/O13 Data Line; J3 Pin 14
M14->Y:$078400,14 ; I/O14 Data Line; J3 Pin 15
M15->Y:$078400,15 ; I/O15 Data Line; J3 Pin 16
M16->Y:$078400,16 ; I/O16 Data Line; J3 Pin 17
M17->Y:$078400,17 ; I/O17 Data Line; J3 Pin 18
M18->Y:$078400,18 ; I/O18 Data Line; J3 Pin 19
M19->Y:$078400,19 ; I/O19 Data Line; J3 Pin 20
M20->Y:$078400,20 ; I/O20 Data Line; J3 Pin 21
M21->Y:$078400,21 ; I/O21 Data Line; J3 Pin 22
M22->Y:$078400,22 ; I/O22 Data Line; J3 Pin 23
M23->Y:$078400,23 ; I/O23 Data Line; J3 Pin 24
M24->Y:$078401,0 ; I/O24 Data Line; J3 Pin 25
M25->Y:$078401,1 ; I/O25 Data Line; J3 Pin 26
M26->Y:$078401,2 ; I/O26 Data Line; J3 Pin 27
M27->Y:$078401,3 ; I/O27 Data Line; J3 Pin 28
M28->Y:$078401,4 ; I/O28 Data Line; J3 Pin 29
M29->Y:$078401,5 ; I/O29 Data Line; J3 Pin 30
M30->Y:$078401,6 ; I/O30 Data Line; J3 Pin 31
M31->Y:$078401,7 ; I/O31 Data Line; J3 Pin 32
M32->X:$078400,0,8 ; Direction control for I/O00 to I/O07
M33->Y:$070800,0 ; Buffer direction control for I/O00 to I/O07
M34->X:$078400,8,8 ; Direction control for I/O08 to I/O15
M35->Y:$070800,1 ; Buffer direction control for I/O08 to I/O15
M36->X:$078400,16,8 ; Direction control for I/O16 to I/O23
M37->Y:$070800,2 ; Buffer direction control for I/O16 to I/O23
M38->X:$078401,0,8 ; Direction control for I/O24 to I/O31
M39->Y:$070800,3 ; Buffer direction control for I/O24 to I/O31

2) JTHW

M40->Y:$078402,8 ; SEL0 Line; J2 Pin 4
M41->Y:$078402,9 ; SEL1 Line; J2 Pin 6
M42->Y:$078402,10 ; SEL2 Line; J2 Pin 8
M43->Y:$078402,11 ; SEL3 Line; J2 Pin 10
M44->Y:$078402,12 ; SEL4 Line; J2 Pin 12
M45->Y:$078402,13 ; SEL5 Line; J2 Pin 14
M46->Y:$078402,14 ; SEL6 Line; J2 Pin 16
M47->Y:$078402,15 ; SEL7 Line; J2 Pin 18
M48->Y:$078402,8,8,U ; SEL0-7 Lines treated as a byte
M50->Y:$078402,0 ; DAT0 Line; J2 Pin 3
M51->Y:$078402,1 ; DAT1 Line; J2 Pin 5
M52->Y:$078402,2 ; DAT2 Line; J2 Pin 7
M53->Y:$078402,3 ; DAT3 Line; J2 Pin 9
M54->Y:$078402,4 ; DAT4 Line; J2 Pin 11
M55->Y:$078402,5 ; DAT5 Line; J2 Pin 13
M56->Y:$078402,6 ; DAT6 Line; J2 Pin 15
M57->Y:$078402,7 ; DAT7 Line; J2 Pin 17
M58->Y:$078402,0,8,U ; DAT0-7 Lines treated as a byte
M60->X:$078402,0,8 ; Direction control for DAT0 to DAT7
M61->Y:$070800,4 ; Buffer direction control for DAT0 to DAT7, PCbus
;M61->Y:$070802,0 ; Buffer direction control for DAT0 to DAT7, VMEbus
M62->X:$078400,8,8 ; Direction control for SEL0 to SEL7
M63->Y:$070800,5 ; Buffer direction control for SEL0 to SEL7, PCbus
;M63->Y:$070802,1 ; Buffer direction control for SEL0 to SEL7, VMEbus

Mini-PMAC1 (ISA, PCI)

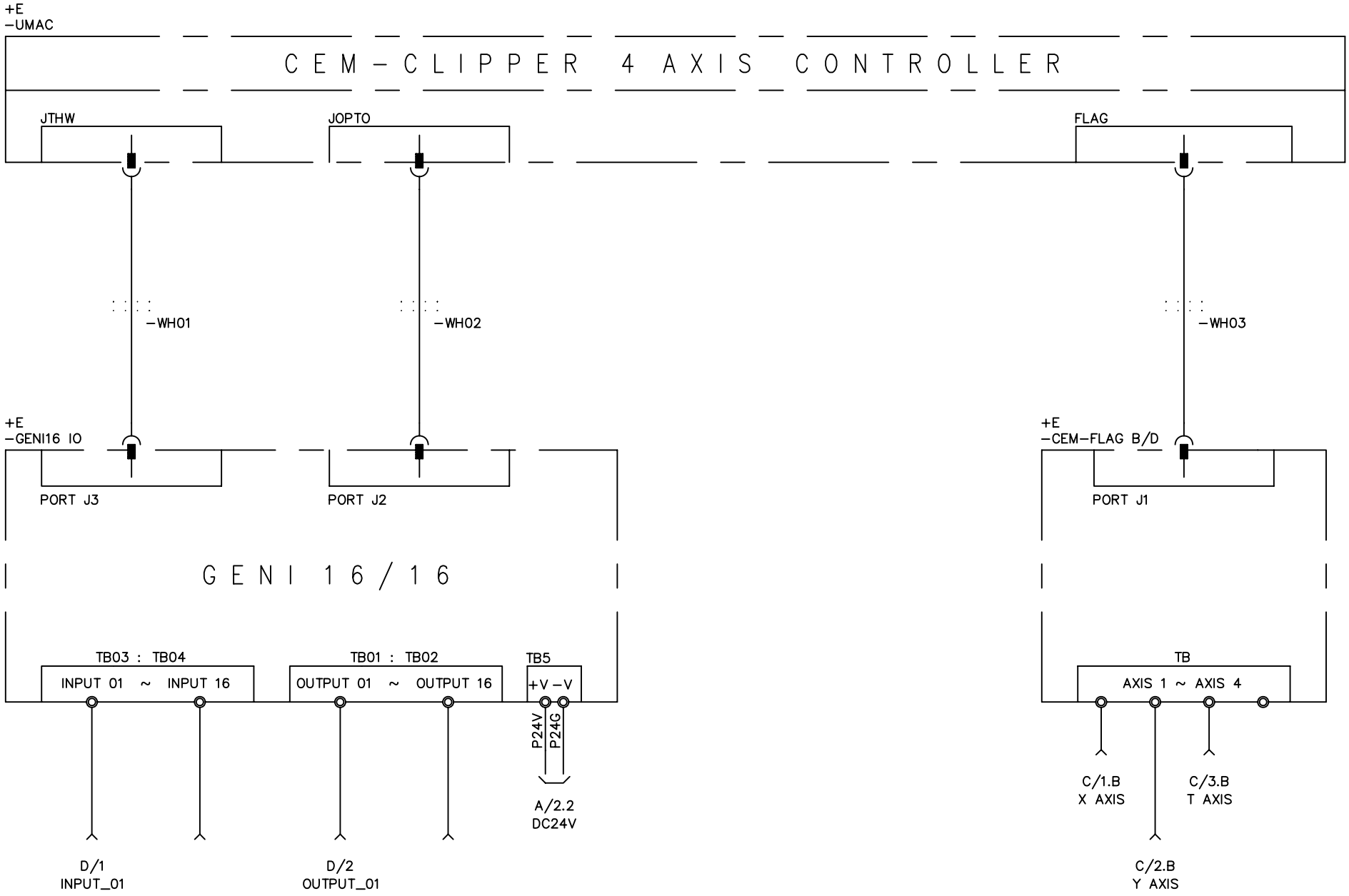
1) JOPTO

M1->Y:$FFC4,0,1 ; Machine Output 1
M2->Y:$FFC4,1,1 ; Machine Output 2
M3->Y:$FFC4,2,1 ; Machine Output 3
M4->Y:$FFC4,3,1 ; Machine Output 4
M5->Y:$FFC4,4,1 ; Machine Output 5
M6->Y:$FFC4,5,1 ; Machine Output 6
M7->Y:$FFC4,6,1 ; Machine Output 7
M8->Y:$FFC4,7,1 ; Machine Output 8
M9->Y:$FFC4,0,8,U ; Machine Outputs 1-8 treated as byte
M11->Y:$FFC3,0,1 ; Machine Input 1
M12->Y:$FFC3,1,1 ; Machine Input 2
M13->Y:$FFC3,2,1 ; Machine Input 3
M14->Y:$FFC3,3,1 ; Machine Input 4
M15->Y:$FFC3,4,1 ; Machine Input 5
M16->Y:$FFC3,5,1 ; Machine Input 6
M17->Y:$FFC3,6,1 ; Machine Input 7
M18->Y:$FFC3,7,1 ; Machine Input 8
M19->Y:$FFC3,0,8,U ; Machine Inputs 1-8 treated as byte

2)JTHW

M40->Y:$FFC2,0,1 ; SEL0 Output
M41->Y:$FFC2,1,1 ; SEL1 Output
M42->Y:$FFC2,2,1 ; SEL2 Output
M43->Y:$FFC2,3,1 ; SEL3 Output
M44->Y:$FFC2,4,1 ; SEL4 Output
M45->Y:$FFC2,5,1 ; SEL5 Output
M46->Y:$FFC2,6,1 ; SEL6 Output
M47->Y:$FFC2,7,1 ; SEL7 Output
M48->Y:$FFC2,0,8,U ; SEL0-7 Outputs treated as a byte
M50->Y:$FFC1,0,1 ; DAT0 Input
M51->Y:$FFC1,1,1 ; DAT1 Input
M52->Y:$FFC1,2,1 ; DAT2 Input
M53->Y:$FFC1,3,1 ; DAT3 Input
M54->Y:$FFC1,4,1 ; DAT4 Input
M55->Y:$FFC1,5,1 ; DAT5 Input
M56->Y:$FFC1,6,1 ; DAT6 Input
M57->Y:$FFC1,7,1 ; DAT7 Input
M58->Y:$FFC1,0,8,U ; DAT0-7 Inputs treated as a byte

DWG No. REF ONLY



NO	REVISION	DATE	SIGN

DF	김 종 구	DS	김 종 구	MODEL	GENI-16
	091103		091103		
CH		AP		델타타우 코리아 Delta Tau Korea	

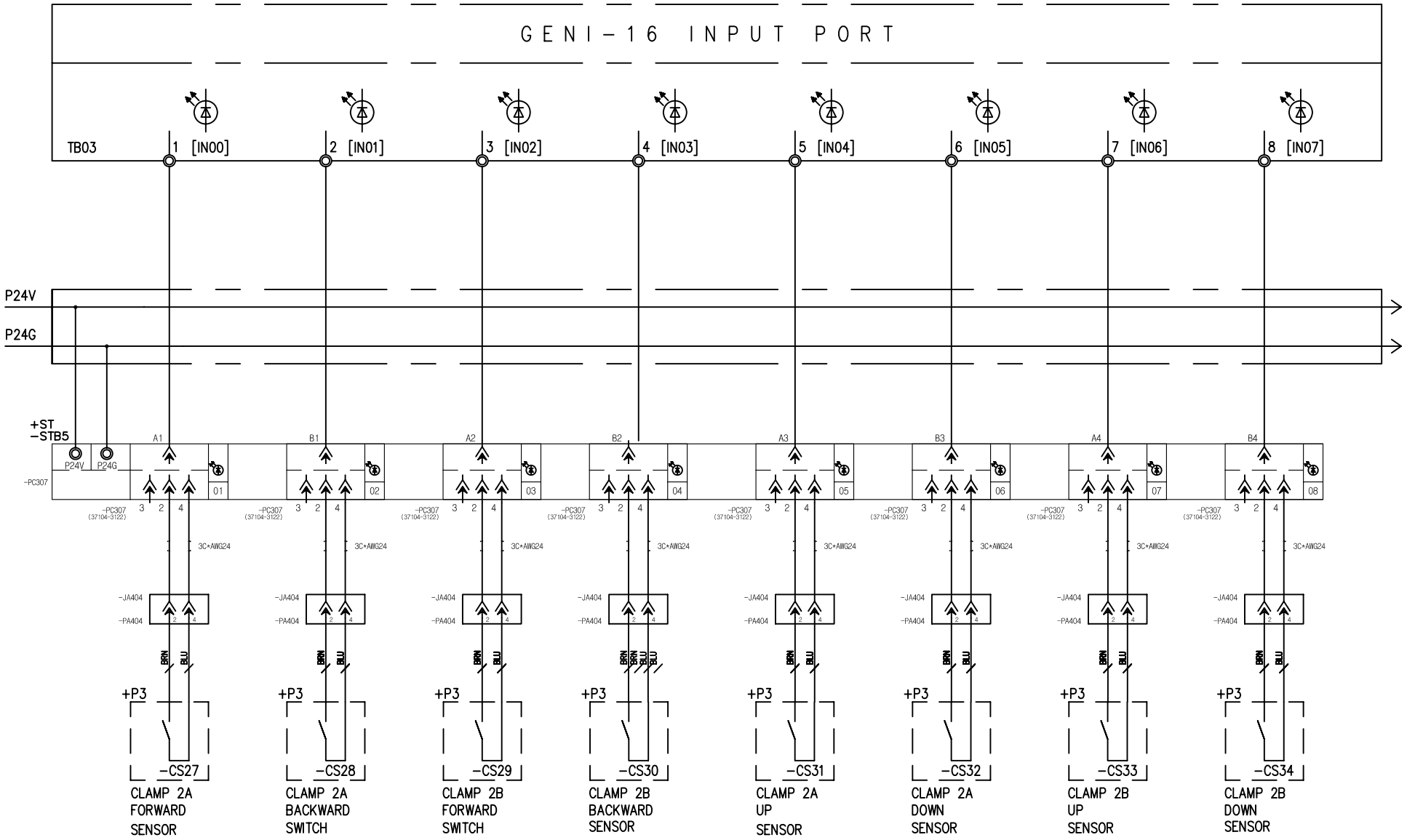
CONTROL MODEL: GENI-16

TITLE	GENI 16결선 예제
DWG NO.	REF. ONLY

GROUP x

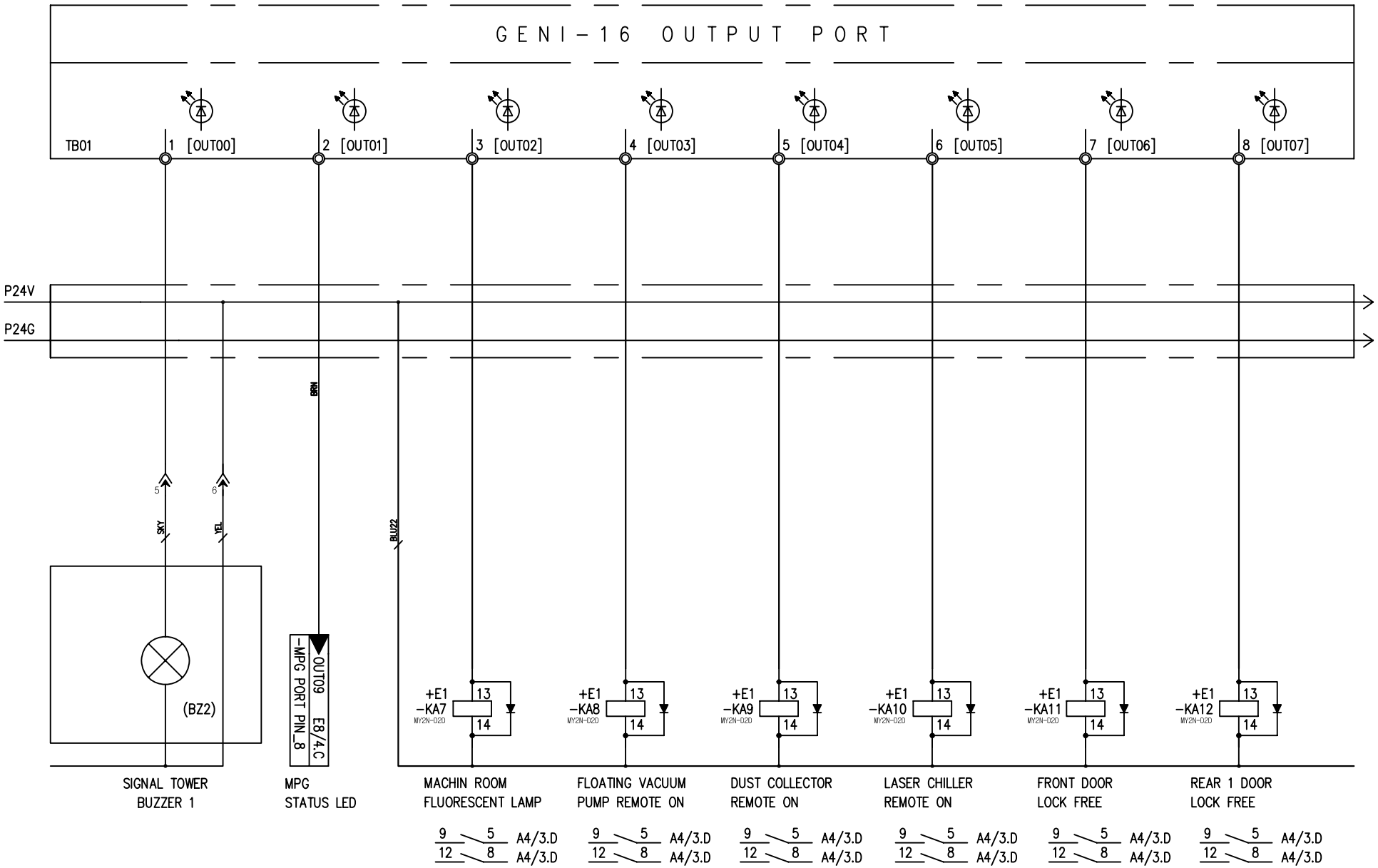
SHEET x

DWG No. REF ONLY



NO	REVISION	DATE	SIGN	DF CH	김종구 091103	DS AP	김종구 091103	MODEL	GENI-16	CONTROL MODEL	GENI-16	TITLE	GENI 16결선 예제(IN)	GROUP D
								델타타우 코리아 Delta Tau Korea				DWG NO.	REF. ONLY	SHEET 1

DWG No. REF ONLY



NO	REVISION	DATE	SIGN	DF	김종구	DS	김종구	MODEL	GENI-16	CONTROL MODEL	GENI-16	TITLE	GENI 16결선 예제(OUT)	GROUP D
				CH	091103	AP	091103	델타타우 코리아 Delta Tau Korea				DWG NO.	REF. ONLY	SHEET 2