Opto-Isolated Digital Output Board

PO-32L(PC)V

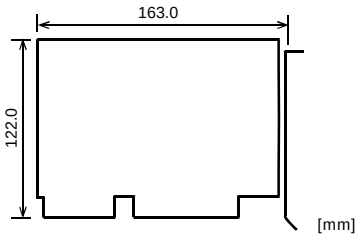
The PO-32L(PC)V is a 32-channel digital output interface board for the IBM PC/AT and compatible computers. It can also be installed into a CONTEC I/O expansion unit.

Features

Opto-Isolated outputs for improved noise resistance.
Up to 32 (8 signals x 4 groups) output signals.
Output ability: up to 35VDC, 100mA per signal, max.

Specification

Item		Specification
Output		
Type		Opto-Isolated Open Collector Output (current sinking type) (Negative logic)
Rating	Voltage	35VDC (Max.)
	Current	100mA Max. per channel
Number of Channels		32 channels (16 channels with the common)
Response time		1ms (Max.)
Common		
I/O address		Any 4-byte boundary
External power supply		12 to 24VDC (±15%) Note: 4mA/12V to 8mA/24V per input channel
Power consumption		5VDC 50mA (Max.)
Operating condition		0 to 50°C, 20% to 90% (not condensing)
Connecting distance		50m (Typ.) (depending on wiring environment)
Dimension (mm)		163.0(L) x 122.0 (H)
Weight		120g



Functions

Output

When installed on a personal computer (PC), these boards write up to 16/32 digital signals (in two groups of eight) to an external device. The PC accesses the board for output through four arbitrarily configurable output ports. When the OUT instruction is executed to write data to any of these output ports, the corresponding latch circuit holds the data. The digital signals are then electrically insulated by the photocoupler. They are output as a group to an external device via the transistor. The signals output to the external device at this time have negative logic. The data in the latch circuit remains intact until the OUT instruction is executed again.

Accessories (Option)

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Screw Terminal: EPD-37 *1
Termination Panel: DTP-3(PC)
Termination Panel: DTP-4(PC)
Signal Monitor for Digital I/O: CM-32(PC)
Signal Monitor for Digital I/O: CM-32(PC)E *1

*1 : The option cable PCB37P or PCB37PS is needed.

Cable & Connector (Option)

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Flat cable with 37-pin D-SUB connectors at either end:
PCB37P-*(1.5m, 3m, 5m)
Shielded cable with 37-pin D-SUB connectors at either end:
PCB37PS-*(0.5m, 1.5m, 3m, 5m)
Flat cable with a 37-pin D-SUB connector at one end:
PCA37P-*(1.5m, 3m, 5m)
Shielded cable with a 37-pin D-SUB connector at one end:
PCA37PS-*(0.5m, 1.5m, 3m, 5m)

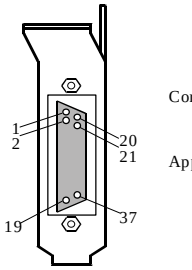
Product Configuration List

Product Configuration List

- Board[PO-32L(PC)V] ... 1
- This User's Manual ... 1

External Connection

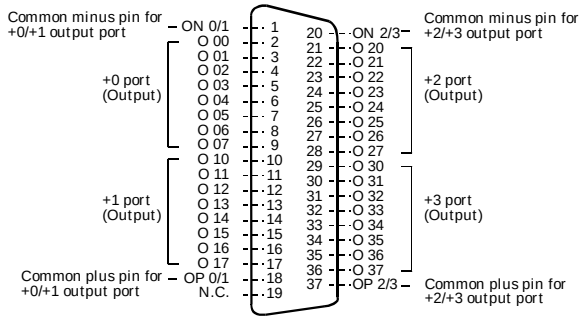
To connect an external device to this board, plug the cable from the device into the interface connector (CN1) shown below.



Connector used
37-pin D-SUB connector (Female)
DCLC-J37SAF-20L9 (mfd. by JAE) equivalent
Screw nut : UNC #4-40 (inch screw)
Applicable connector
17JE-23370-02(D8C) (mfd. by DDK, Male)
FDCD-37P (mfd. by HIROSE, Male)
DC-37P-N (mfd. by JAE, Male)

Interface Connector Pin Assignment

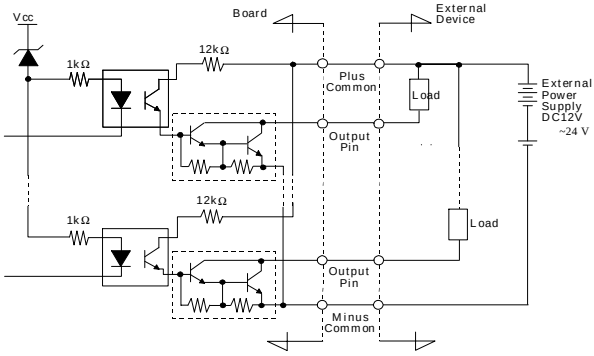
To connect an external device, plug it into the 37-pin connector on the PO-32L(PC)V interface board.



Output Circuit

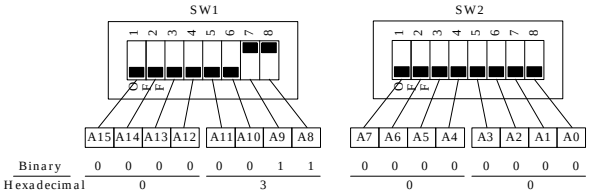
Output circuit

The output circuit of these boards is illustrated in the following figure. The output channel is a photocoupler-isolated open-collector (sink type). You need an additional power supply that is isolated from the PC to drive these insulation circuits. The maximum output current ranting is 100mA per channel.



I/O Address Setting

Use the on-board DIP switches (SW1 and SW2) to set the I/O base address of your board. Individual bits in SW1 and SW2 correspond to the 15 high-order bits (A15 to A1) in the I/O base address.
Always set A1 to A0 to "0" (OFF) for the board.



The figure shows that the head I/O Address is set as 0300H by a diagram, and this board occupies the I/O Address of 0300H-0301H.

I/O Port Bit Assignment

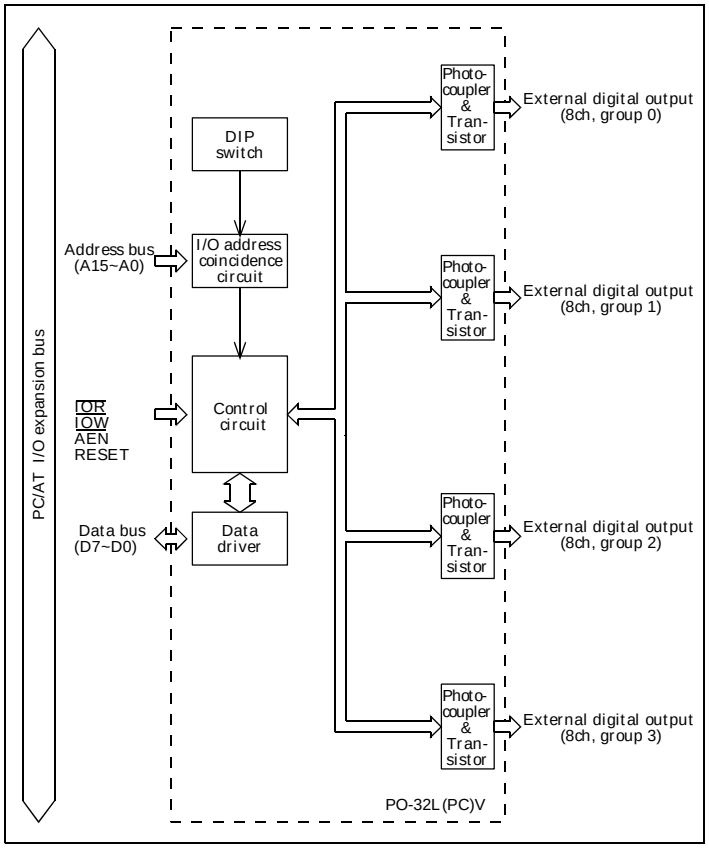
Output Port Bit Assignments

When "1" is output to a bit, the corresponding output data is set to "ON." If "0" is output to the bit, the data is set to "OFF."

I/O base address	D 7	D 6	D 5	D 4	D 3	D 2	D 1	D 0
	Output Group 0 (+0 port)							
+0H	O07 [9]	O06 [8]	O05 [7]	O04 [6]	O03 [5]	O02 [4]	O01 [3]	O00 [2]
	Output Group 1 (+1 port)							
+1H	O17 [17]	O16 [16]	O15 [15]	O14 [14]	O13 [13]	O12 [12]	O11 [11]	O10 [10]
	Output Group 2 (+2 port)							
+2H	O27 [28]	O26 [27]	O25 [26]	O24 [25]	O23 [24]	O22 [23]	O21 [22]	O20 [21]
	Output Group 3 (+3 port)							
+3H	O37 [36]	O36 [35]	O35 [34]	O34 [33]	O33 [32]	O32 [31]	O31 [30]	O30 [29]

Oxx is an output signal name; numbers in brackets [ ] are connector pin numbers.

Block Diagram



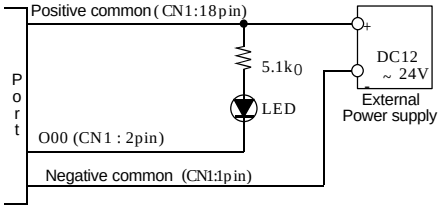
Example

Program that makes LED connected to O00 output terminal as an example of use of this board. According to ON/OFF of the external switch connected to I00 input terminal turn on switch off is shown below. Description language is Microsoft C. In the state of switch-on, 1 is displayed on screen, LED lights up, 0 is displayed on screen in the state of switch-off, and LED puts out the light.

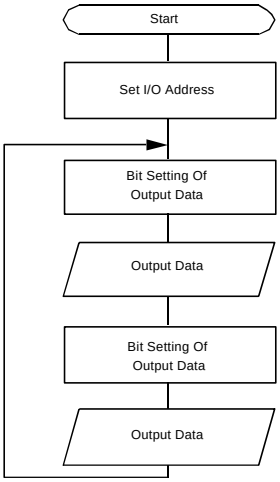
Setting Conditions

I/O Address: 0300H
Interrupt: unused (Please remove all the short connectors of JP1.)

Connection example



Flow Chat



Program List

```
#include<stdio.h>
void main (void)
{
  int port ;
  int pidata ;

  port = 0x300 ;         /*Set I/O Address*/
  do {
    pidata = inp ( port ) ;  /*Input data*/
    printf( "%x\n", pidata );  /*Display data*/
    outp( port, pidata )     /*Output data*/
  }while( !kbhit() ) ;
}
```