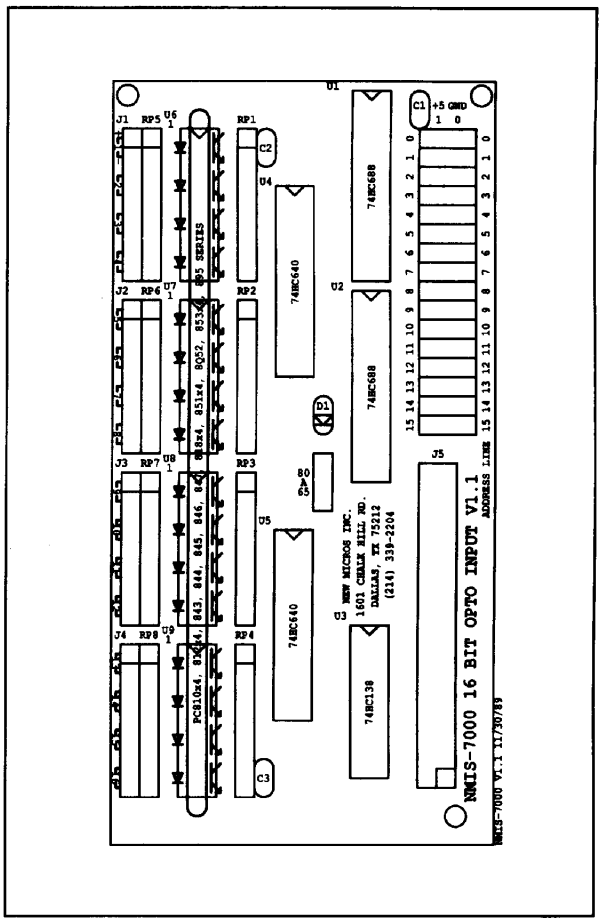
NMIS-7000 OPTO INPUT CARD

The NMIS-7000 16-Bit, Optoisolated Input Card, in 2x4"™ format, provides a JEDSTACK™ computer system with access to 16 optically isolated input lines. The inputs are arranged to be easily connected by four 8-pin connectors to individual wires.

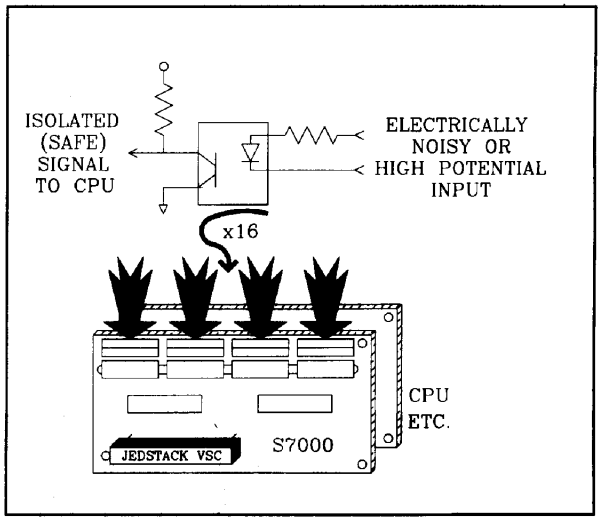


FEATURES

- 16 individual optically isolated input lines read as two consecutive bytes in memory
- Arranged as four quad optoisolators
- Four 8-pin connectors to individual wires
- User-replaceable resistor packs in machine tool sockets for LED series current limits
- User-replaceable resistor packs in machine tool sockets for pull-ups on the collectors of output transistors
- Input range from 1 to 200V
- 5000 V_{RMS} Isolation (max.) (NEC PS2501-4)
- 300% transfer ratio (max.) (NEC PS2501-4)
- 3/5uS typical rise/fall time (NEC PS2501-4)

Pins on Connector J1 through J4 are attached to individual input control points. The series current limiting resistors, which protect the LED's in the optoisolators from high currents, are installed in machine tool sockets, to allow replacement, according to the voltage input range being monitored. Four optoisolator chips are provided. They also are socketed to allow replacement. The pull-ups on the collectors of the optoisolators output transistor are also socketed, to allow replacement, if faster rise times are desired (at the cost of power consumption). Two inverting bus drivers are connected to the data bus, and gate the input signals to the processor.

A Vertical Stacking Connector in the lower right hand corner (top view) provides connections to the processor's address and data bus, control signals, 5V power and ground. Address decoding of the drivers' space in memory is accomplished by two octal comparators and 16 two-position jumpers. Each jumper setting corresponds to the state of a particular address line. The NMIS-7000 occupies two address locations. Any 2-byte boundary in the 64K address space of the JEDSTACK™ processor's bus can be selected by correct jumper placement.



Application

NMIS-7000

NMIS-7000 OPTOISOLATED INPUT CARD 2x4"s

NMIS-7000 OPTOISOLATED INPUT CARD 2x4"s

DESCRIPTION

The NMIS-7000 16-Bit Opto Input Card is designed to stack on the 2x4"s™ NMIS Series, the "100 Squared"™ NMIX, and the "Generic Target Computer"™ NMIT Series (with the Vertical Stacking Connector added to the latter) of single board computers. The "JEDSTACK"™ provides interface signals to the board including address lines, data lines, control lines and 5V power and ground. The fast HC devices allow access times approaching 90nS.

The addressing of the octal bus drivers on the NMIS-7000 is sensed by two octal comparators that decode the 15 address lines (A15 - A1) and one control line (AS' for F68HC11 systems, CSEX' for R65F11 systems) in order to select only two active location out of a 64K address space. The remaining address line (A0) and one control line (OE') are used to gate the signals to the bus.

The drivers are enabled by the chip selects when the processor chooses to read the inputs. If there is sufficient current coming from the input connectors to light the LED in the optoisolators, the transistor on the other side will be turned on. These output transistors, when active, cause a "0" to be sensed by the bus drivers. When the output transistors are not active, the resistor packs act as pull-ups, causing a "1" to be sensed by the bus drivers. The inverting aspect of the drivers returns the input signal to a "true" representative signal. In other words, when there is input current, the optoisolator's LED is on, the output transistor is on, and the reading at that point is a negative logic "1" or 0V. The driver's inversion returns that input signal to the processor as a positive logic "1". Despite the use of HCMOS circuitry throughout, the very nature of the optoislolation, with pull-ups and LED drive currents, uses larger amounts of current than other NMIS boards.

Besides the chips provided with the board, a wide range of other possible opto chips can be used in these locations. Some of the reasons for picking a particular type optoisolator chip can be: speed response, current transfer ratios, isolation voltage between input and output, and cut-off frequency. If a different characteristic is desired, it is important to keep in mind, the board was designed for a particular group of quad optoisolators. They can be distinguished from other types by examining the pattern of signals on the input pins. The ones that have a regular repeating pattern of anode - cathode - anode - cathode, etc., are the type for which the board was designed, such as the PS2501-4 from NEC and the PC843, PC844, PC845, PC846, PC847, and the PC8Q52 and PC895 series from Sharp, and their equivalents from other manufacturers. The type which will not work has a double repeating pattern of anode - cathode - cathode - anode, etc. A number of single unit devices that can be stacked end to end can also be used in the board, such as the PC810, PC812, PC818, PC851 and PC853 series from Sharp, and their equivalents from other manufacturers.

ADDRESS	Bit # 7	Bit # 6	Bit # 5	Bit # 4	Bit # 3	Bit # 2	Bit # 1	Bit # 0
XXX0	IN 8	IN 7	IN 6	IN 5	IN 4	IN 3	IN 2	IN 1
XXX1	IN 16	IN 15	IN 14	IN 13	IN 12	IN 11	IN 10	IN 9

Register Summary

NMIS-7000

WORLD HEADQUARTERS

AMERICA (N, C & S)

NEW MICROS, INC.
Sales Department
1601 Chalk Hill Road
Dallas, TX 75212, USA
Phone: (214) 339-2204
Fax: (214) 339-1585
G3, G2, FMG1
User Bulletin Board:
(214) 339-2321
24/12, N, 8, 1

WORLDWIDE REPRESENTATIVES

CENTRAL EUROPE

MS
Microscan Electronic GmbH
31 Ueberseering
P O Box 601705
D 2000 Hamburg 60
WEST GERMANY
Phone: 0 40163 20 03-0
Fax: 0 40/63 20 03-49
Telex: 2 13 288

SOUTHERN EUROPE

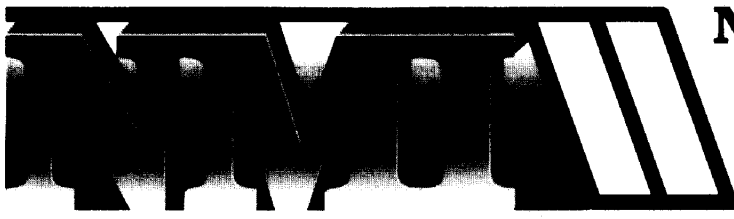
DEMEL
G. Demel Handelsges, m.b.H.
Hoffmeistergasse 8-10/1/4,
A-1120 Vienna, AUSTRIA
Phone: (0043) 0222 813 2507-0
Fax: (0043) 0222 85 95 93
Telex: 75311851

SCANDINAVIA

FIELD OY
ELECTRONIIKKARYHMA
P O Box 131 SF 00601
Helsinki, FINLAND
Phone: 358 0 757 1011
Fax: 358 079 8853
Telex: 12-2022 FIELD SF

ASIA

CIBI TRADING INT'L
20 Matimtiman Street
Teacher's Village, Diliman
Quezon City, PHILIPPINES
Phone: (632) 922-2988
Fax: (632) 921-8027



NEW MICROS, INC.
1601 Chalk Hill Road
Dallas, Texas 75212
Tel: (214)-339-2204