

308-699.

CRYDOM
COMPANY

SERIES MS-H AND MS-L

Mounting Boards for
Microprocessor Interface
Input/Output Modules

For 4, 8, 16 and 24 Modules

GENERAL DESCRIPTION:

Crydom Series MS mounting boards are designed to accommodate up to 4, 8, 16 or 24 Crydom Series 6 or DMP Input/Output modules, or equivalents, in any mix. Two types of boards are available: the Standard Series MS-"H" boards for 4, 8, 16 and 24 modules; and the "Easy Maintenance" Series MS-"L" boards, available in 16 and 24 module configurations only. Modules can be easily inserted and removed without disturbing field wiring on both board types, and each Series 6 module is firmly secured by a captive screw which mates with threaded inserts provided on all board types. For highlight data on Series 6 I/O Modules, see the back cover of this Bulletin.

Barrier strips on the standard "H" and the "Easy Maintenance" "L" series boards are UL and CSA recognized. Field wiring connections are made with wire clamping terminals that allow straight-in insertions of two wires up to #12 gauge.

STANDARD MS-H MOUNTING BOARD FEATURES.

Sockets on MS-H Boards are rated for 10,000 insertions. The board design features Pull-up Resistors, LED Status Indicators, Decoupling Capacitors, a Ground Plane and Solder Mask Protection.

Field lines and data control lines are protected by the solder mask coating and are separated by ground traces and a ground plane to minimize cross talk. Each data line has a 3.3k ohm pull-up resistor. Each field pair includes a plug-in replaceable 5 Amp fuse (Little fuse P/N 275-005 or equivalent) to protect the wiring and/or load.

With the exception of Model MS-4, standard boards include both ribbon card edge and cable header pin-out patterns to allow maximum flexibility for connecting to microprocessor boards. As an alternative to the ribbon card edge connector, a double row hole pattern is wired in parallel for a solder-pin cable header connector (not supplied).

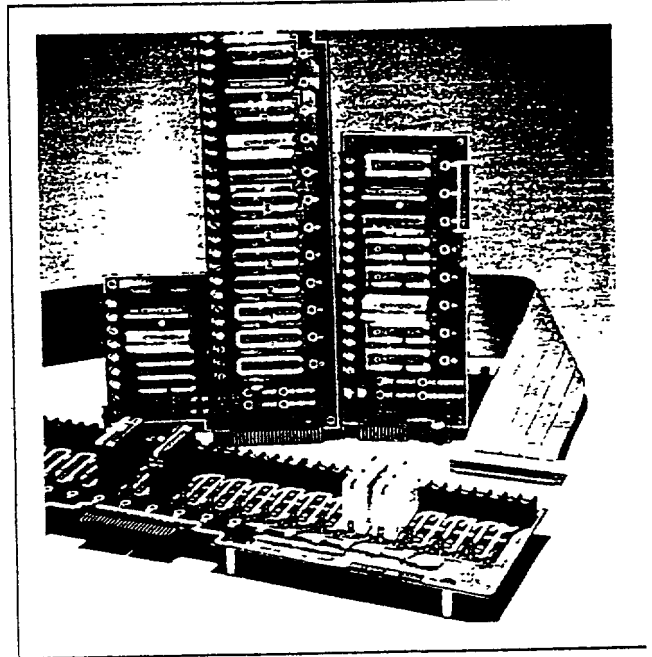
NEW, SERIES MS-L "EASY MAINTENANCE" BOARDS

The new Crydom Series "L" mounting boards maintain the electrical characteristics and integrity of the MS-"H" series, but offer several "user friendly" features such as: high, uniform contact pressure plug-in sockets which simplify design changes and maintenance. LEDs, which are included at each module location for on/off status indication, are also "plug-in" for simple replacement. In place of higher cost, soldered-in fuses, the standard 5 Amp 3AG type snap-in fuse assembly makes needed replacement fast and economical.

Series MS-L boards, available in 16 and 24 module configurations only, include a 50-pin keyed card edge connector for ribbon cable connection to microprocessor boards. See Connector Option Table for connector specifications.

POWER. With the exception of Models MS-4 and MS-4H, power is introduced by means of a dual barrier strip. Other options includes entry via the cable on pin 1 or pin 49, enabled by means of a customer-installed jumper. Decoupling capacitors are provided for noise protection and also to minimize cross talk.

- Plug-in Fuses
- Individual Pull-up Resistors
- LED Status Indicators
- Decoupling Capacitors
- Optional Card Edge Connections



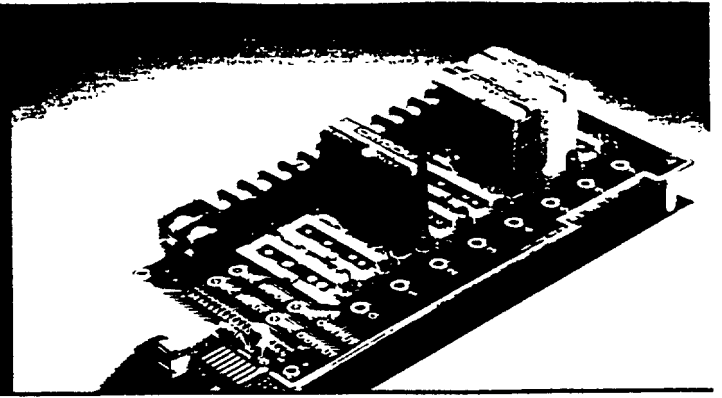
Logic Interface Connector Options

(Contacts soaked in .10 cleaners)

Connector Availability by Board Part Number	MS-4	MS-4H	MS-8H	MS-16H	MS-24H
	①	② ④ ⑤	② ④ ⑤	③ ⑤	② ③
				MS-16L	MS-24L
				②	③

- ① Barrier Terminal Strip
- ② 50-pin card edge connector (T&B/Ansiev P/N 609-5015M or equivalent)
- ③ 50-pin header (T&B/Ansiev P/N 609-5037E or equivalent) with matching female socket connector (T&B/Ansiev P/N 609-5030 or equivalent)
- ④ 26-pin card edge connector (T&B/Ansiev P/N 609-2615M or equivalent)
- ⑤ 40-pin header (T&B/Ansiev P/N 609-4037E or equivalent) with matching female socket connector (T&B/Ansiev P/N 609-4030 or equivalent)

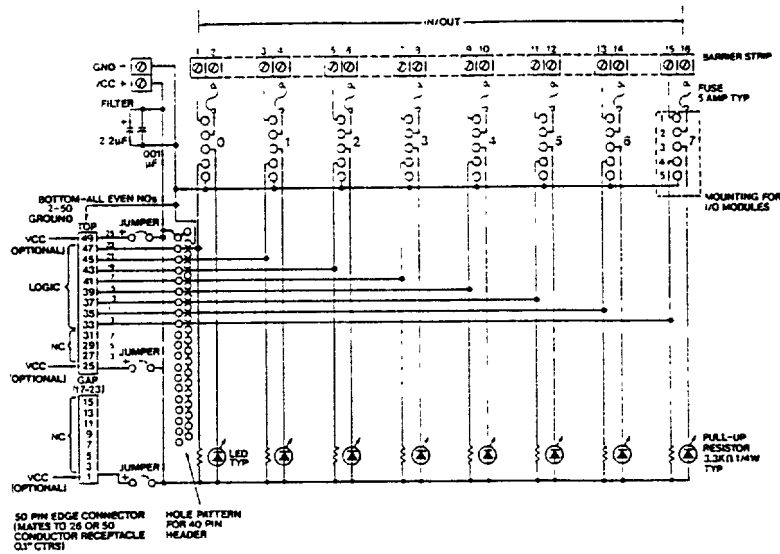
8 MODULE MOUNTING BOARD



SEE LOGIC INTERFACE OPTIONS — PAGE

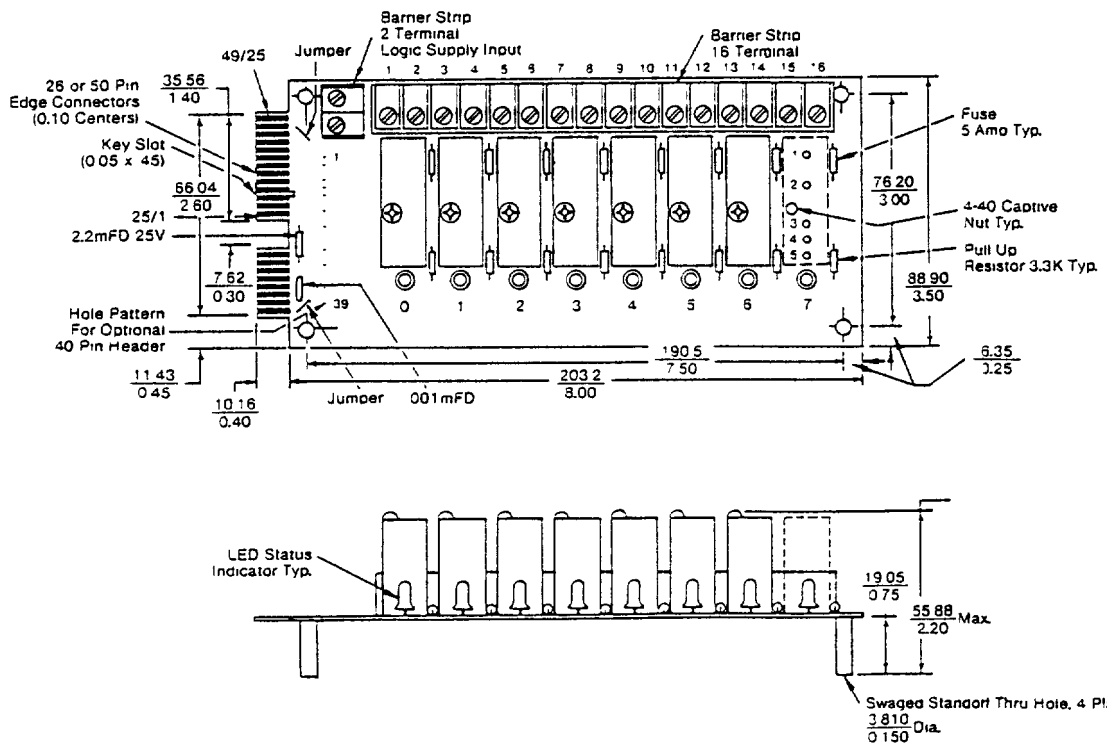
26 or 50-Pin Card Edge Connector. (0.10 centers)
 Hole Pattern for Optional 40-Pin Mass Terminated Cable Header.

MS-8H Schematic

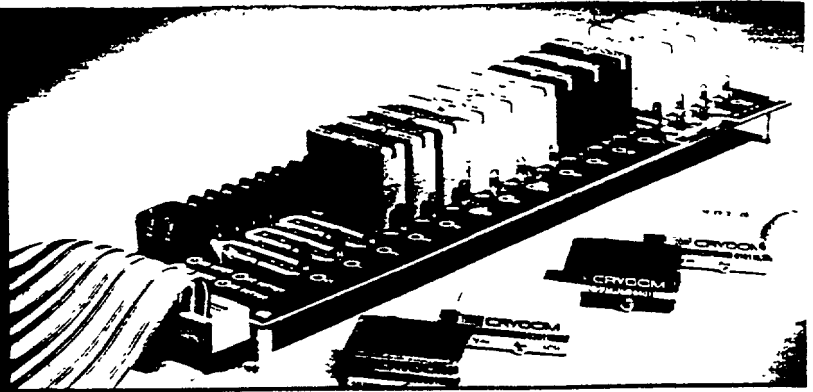


MS-8H Dimensions

All Dimensions in $\frac{\text{mm}}{\text{inches}}$



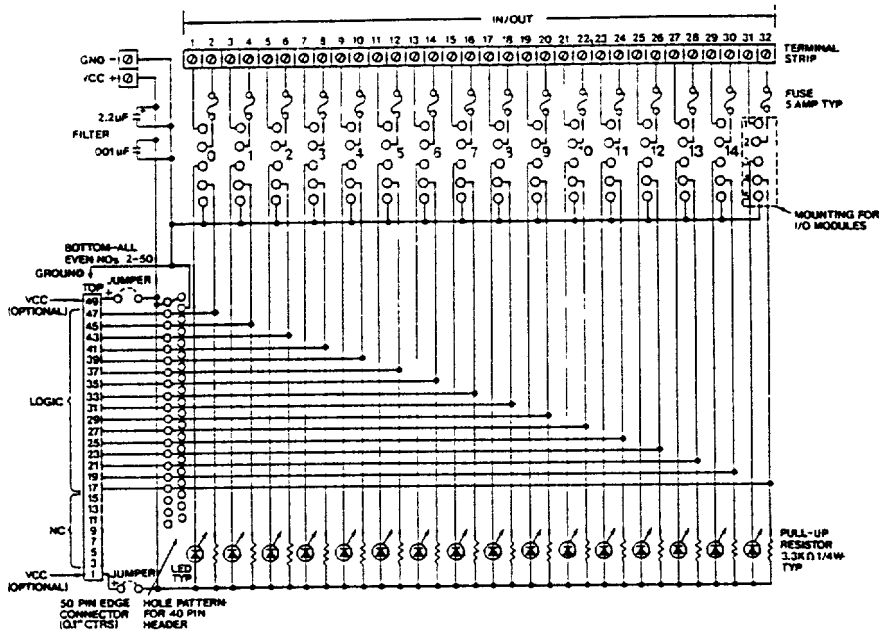
16 MODULE MOUNTING BOARD



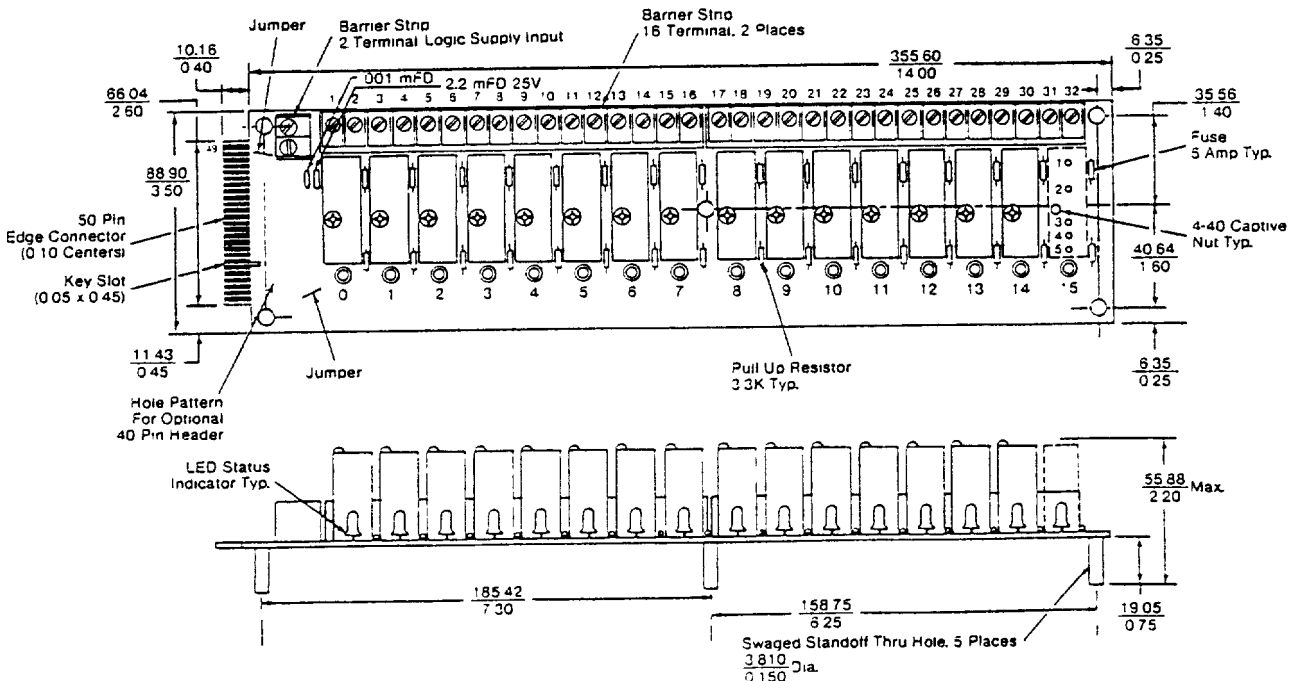
SEE LOGIC INTERFACE OPTIONS — PAGE 1

50-Pin Card Edge Connector.
Hole Pattern for Optional 40-Pin Mass Terminated Cable Header.

MS-16H Schematic



MS-16H Dimensions All Dimensions in mm inches

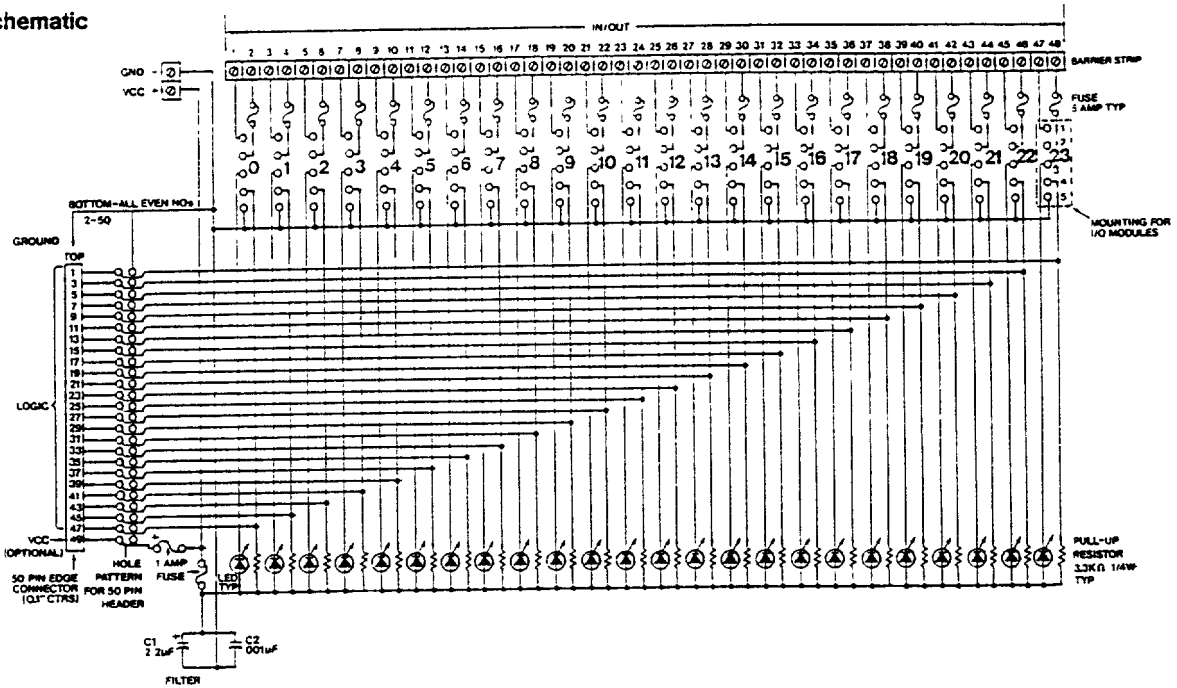


24 MODULE MOUNTING BOARD

SEE LOGIC INTERFACE OPTIONS — PAGE 1

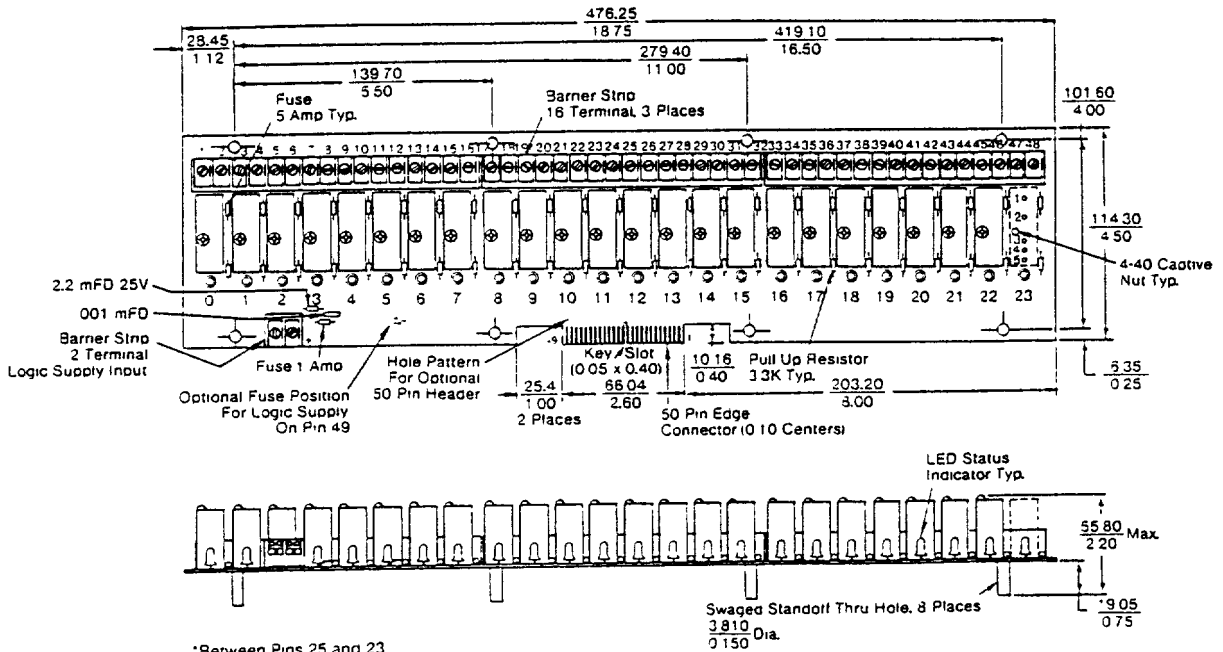
50-Pin Card Edge Connector.
Hole Pattern for Optional 50-Pin Mass Terminated Cable Header.

MS-24H Schematic



MS-24H Dimensions

All Dimensions in $\frac{mm}{inches}$



MS-16L AND MS-24L

16 AND 24 MODULE "EASY MAINTENANCE" PLUG-IN MOUNTING BOARDS

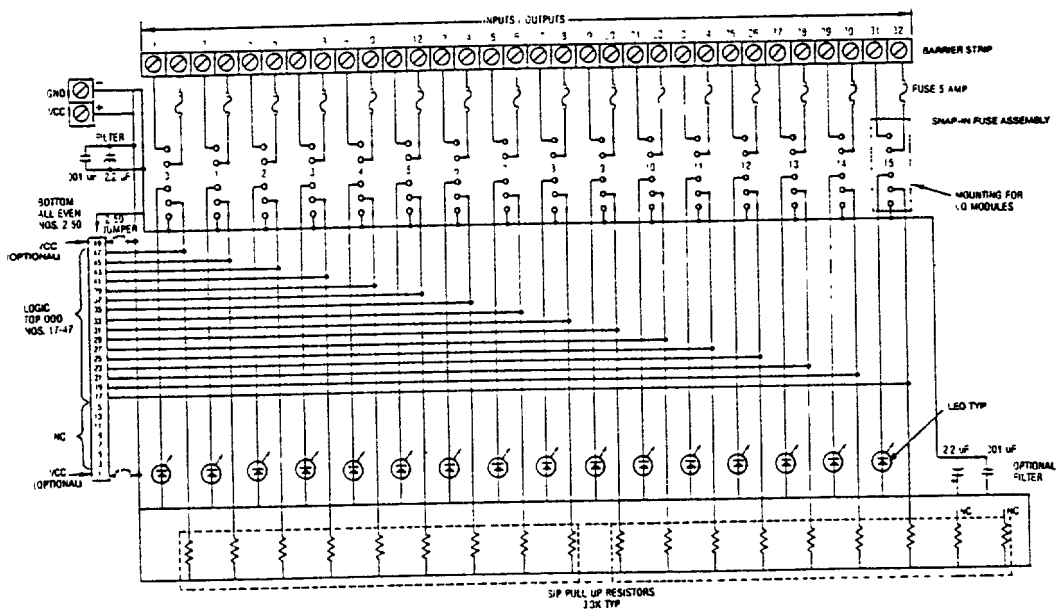
PLUG-IN MODULES and right-angle contact pressure plug-in sockets eliminate module soldering, simplify design changes and maintenance.

PLUG-IN FUSE ASSEMBLIES for standard 3AG fuses eliminate soldering.

PLUG-IN LED STATUS INDICATORS eliminate soldering operations.

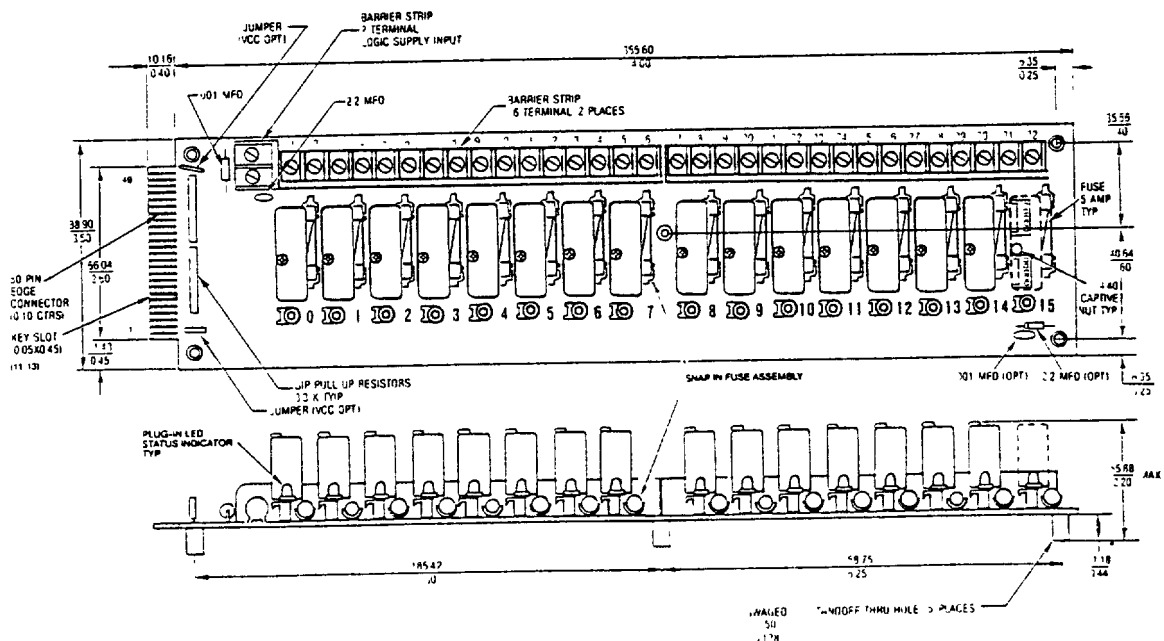
50-Pin Card Edge Connector.

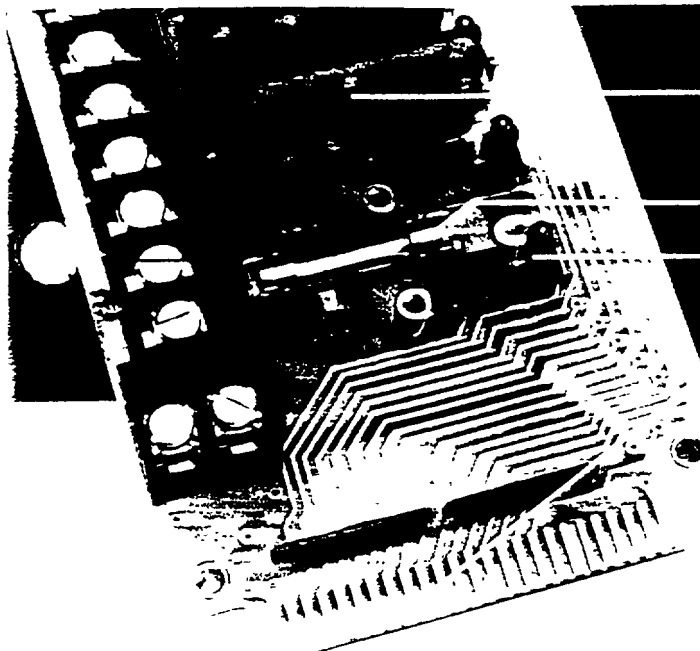
MS-16L Schematic



MS-16L Dimensions

All Dimensions in $\frac{\text{mm}}{\text{inches}}$





Accepts Crydom Series 6 and DMP Input/Output Modules or equivalents in any mix.

Plug-in 3AG Fuse Assemblies.

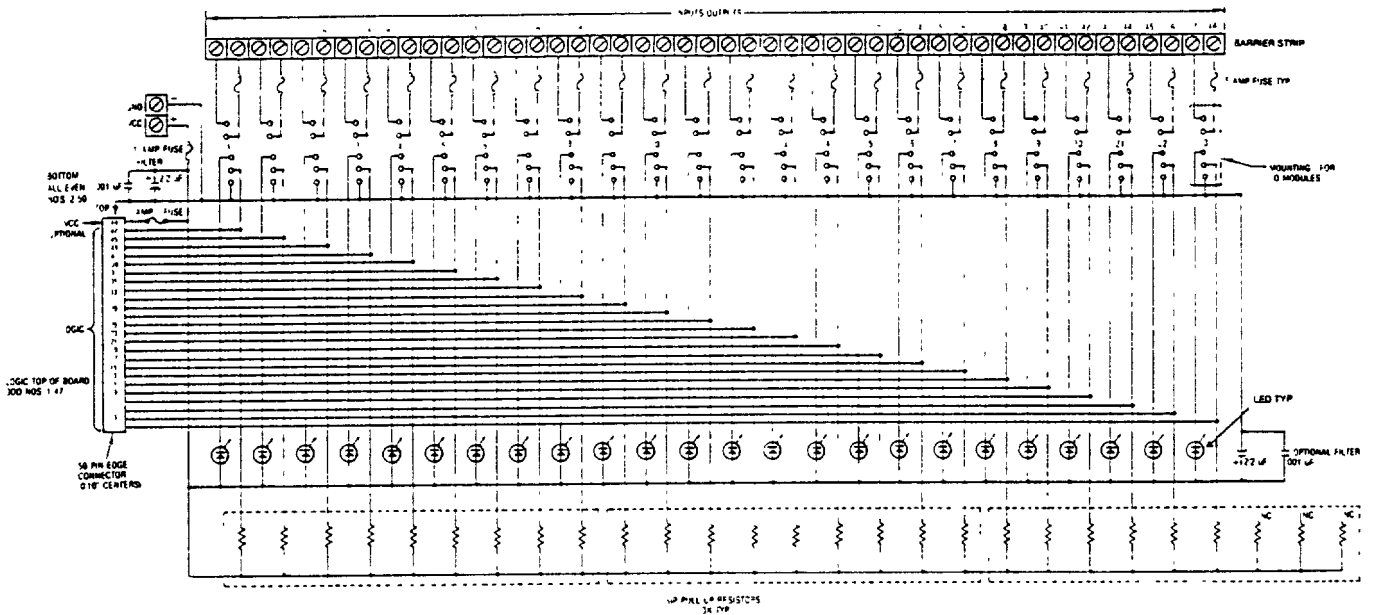
Plug-in LED sockets

Gold Plated Card Edge Connector Pins

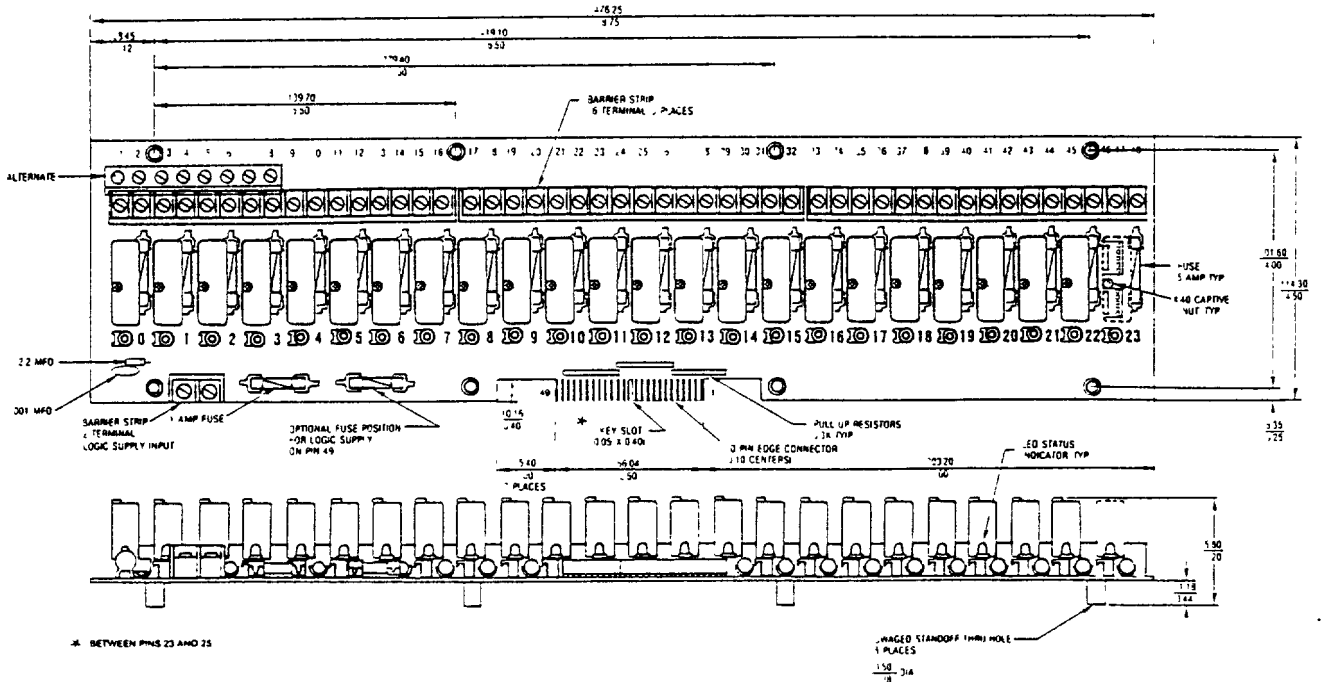
MODEL MS-16L PICTURED

MS-24L Schematic

50-Pin Card Edge Connector.
Hole Pattern for Optional



MS-24L Dimensions All Dimensions in mm
inches

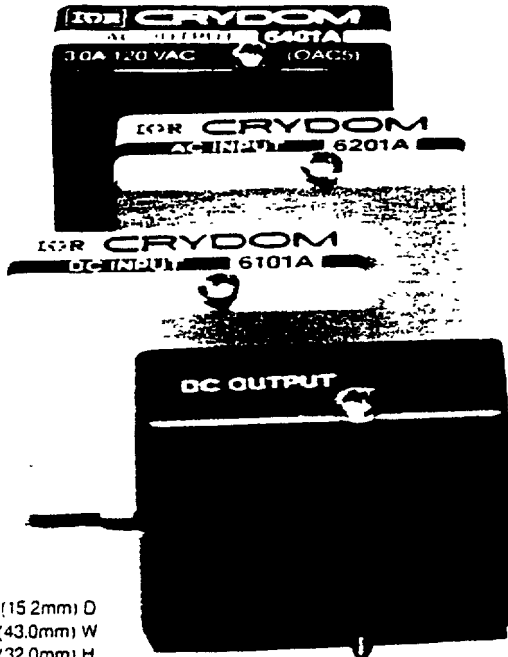


* BETWEEN PINS 23 AND 25

CHARGED STANDOFF THRU HOLE
1 PLACES
1.50 ±.04
1.50 ±.04

SERIES 6

AC AND DC MICROPROCESSOR INPUT/OUTPUT MODULES 3.5 AMPS, 60 VDC, 120 and 240 VAC.



Series 6 0.60" (15.2mm) D
1.70" (43.0mm) W
1.25" (32.0mm) H

General Description

Crydom Series 6 Input and Output Modules are a family of high performance microprocessor interface switches designed to meet the demands of a rapidly expanding industrial control market. These reliable Crydom I/O modules provide an electrically clean, photo-isolated (4000 VRMS min.), noise-free interface between programmable controllers, microprocessors and computerized machine controls and external elements such as limit switches, thermostats, pressure switches, motor/motor starters, valves and heaters.

Input Modules

The input modules accept power level field control signals and convert them to photo-isolated logic level signals through noise suppression circuitry suitable for input to a microprocessor or logic system.

Output Modules

Crydom Output Modules accept logic level control signals to switch AC or DC loads up to 3.5 Amps at 45°C ambient temperature. The AC modules have integral snubbers for low power factor loads and also provide zero-voltage switching. DC models incorporate transient voltage suppression.

Buffered Output Modules

Buffered output modules contain additional internal amplification to reduce drive requirements at a level suitable for the MOS devices used in many microprocessor systems. To further reduce the need for additional interface components, they are available with both inverting and non-inverting inputs, for 5 volt or 15 volt logic.

General Specifications — All Models

Dielectric (Input/Output) 4000 VRMS
Isolation Resistance (Input/Output @ 500 V) 10¹⁰ Ohms
Capacitance (Input/Output) 8.0 pF
Operating Temperature Range -40°C to 80°C

For a complete technical description of the CRYDOM Series 6 Input/Output Modules, ask for Bulletin C100-5A.

Standard Input/Output Modules (and Equivalents)

5 Volt Models		15 Volt Models		Type	Input Current vs. Voltage	Maximum Load Voltage	Maximum Load Current
P-N	Equivalent	P-N	Equivalent				
6101/6101A*	IDC5	6131	IDC15	DC/IN	7 mA @ 32 VDC	30 VDC	25 mA @ 80 C
6201A*	IAC5	6231	IAC15	AC/IN	6 mA @ 120 VAC	30 VDC	25 mA @ 80 C
6202A*	IAC5-A	6232	IAC15-A	AC/IN	6 mA @ 240 VAC	30 VDC	25 mA @ 80 C
6301A*	ODC5			DC/OUT	15 mA @ 5 VDC	60 VDC	3ADC @ 45 C
6401A*	OAC5			AC/OUT	15 mA @ 5 VDC	140 VAC	3A RMS @ 45 C
6402A*	OAC5-A			AC/OUT	15 mA @ 5 VDC	280 VAC	3A RMS @ 45 C
6102	—	—	—	DC/IN	6 mA @ 180 VDC	30 VDC	25 mA @ 80 C
6200	—	—	—	AC/IN	6 mA @ 24 VAC	30 VDC	25 mA @ 80 C
6302	ODC5 -A	—	—	DC/OUT	12 mA @ 5 VDC	200 VDC	1.5A @ 45 C

* In compliance with NEMA 2-230 (Noise Immunity)

Buffered Output Modules

Crydom Part Number		Type	Input Current vs. Voltage 5 Volt Models	Input Current vs. Voltage 15 Volt Models	Maximum Load Voltage	Maximum Load Current
5V Models	15V Models					
6311	6341	DC/OUT	75 µA @ 0.8 VDC*	175 µA @ 2.0 VDC*	60 VDC	3.5 ADC @ 45 C
6321	6351	DC/OUT	75 µA @ 2.4 VDC**	75 µA @ 8.0 VDC**	60 VDC	3.5 ADC @ 45 C
6411	6441	AC/OUT	75 µA @ 0.8 VDC*	175 µA @ 2.0 VDC*	140 VAC	3.5A RMS @ 45 C
6412	6442	AC/OUT	75 µA @ 0.8 VDC*	175 µA @ 2.0 VDC*	280 VAC	3.5A RMS @ 45 C
6421	6451	AC/OUT	75 µA @ 2.4 VDC**	75 µA @ 8.0 VDC**	140 VAC	3.5A RMS @ 45 C
6422	6452	AC/OUT	75 µA @ 2.4 VDC**	75 µA @ 8.0 VDC**	280 VAC	3.5A RMS @ 45 C

* Sink current (non-inverting) ** Source current (inverting)

CRYDOM

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4-88 ISM

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