



User Manual

CBM Multi-Mode Optical Isolator

CBM MMOI
Version 2.6
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Warranty

CBM of America warrants that its equipment is free from defects in materials and workmanship. The warranty period is one year from the date of shipment. CBM of America's obligation under this warranty is limited to the repair or replacement of the defective equipment provided it is returned to CBM, shipping prepaid, within a reasonable period of time. This warranty shall not apply to equipment that has been subject to accident, misuse, alterations, or repairs not made or authorized by CBM.

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Operational Specifications

The Multi-Mode Optical Isolator is designed to operate within a voltage range of 36VDC to 72VDC and at an operating temperature of -10 to 40 degrees C.

Antistatic Precautions

Electrostatic discharge (ESD) results from the buildup of static electricity and can cause damage to electronic components. ESD precautionary practices are required when installing, configuring, or repairing the Optical Isolation Patch Panel. Use of a wrist strap is recommended. Do not use conductive tools to change parts or jumper settings in the Multi Mode Optical Isolator.

NEBS Compliance

This Class 2 data communications equipment has been Level 3 NEBS compliance tested and approved under the guidelines specified by the Bellcore GR-63-CORE, and Bellcore GR-1089-CORE Technical References. The CBM Multi Mode Optical Isolator conforms to the UL Standard for Safety, ANSI/UL 1950, Third Edition.

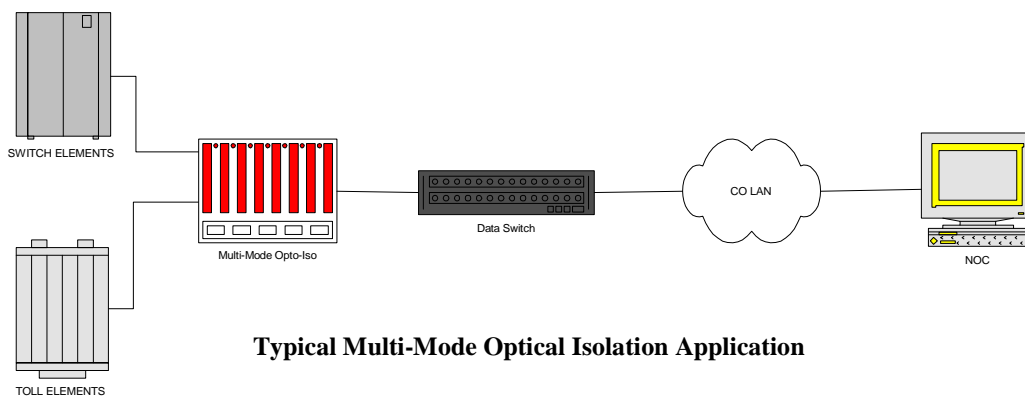
Support

CBM of America maintains a 24 hour support organization for the installation and operation of this product. Call 800-881-8202 with the serial number of the product and a technical support representative will return your call promptly.

Technical Specifications of the MMOI

Product Overview

The CBM Multi-Mode Optical Isolator (MMOI) is a 48VDC rack mountable high speed device that provides **universal connectivity and optical isolation** for up to 19 network element connections per chassis utilizing any of the eight (8) interfaces listed below. The MMOI provides **ground plane violation protection** for digital switch connections such as maintenance terminal applications for new installations and retrofits from isolated ground plane MAP rooms to integrated ground plane MAP rooms. Configured via jumpers, the unit also can provide hardware interface conversion as needed (eg. RS530 on the input and RS232 on the output) and can operate at data transfer rates of up to 120KB. An internal loopback feature allows for the driver outputs to be connected to the receiver inputs for convenient diagnostic testing. No external loopback plugs or devices are necessary for accurate testing.



Interface Modes Supported

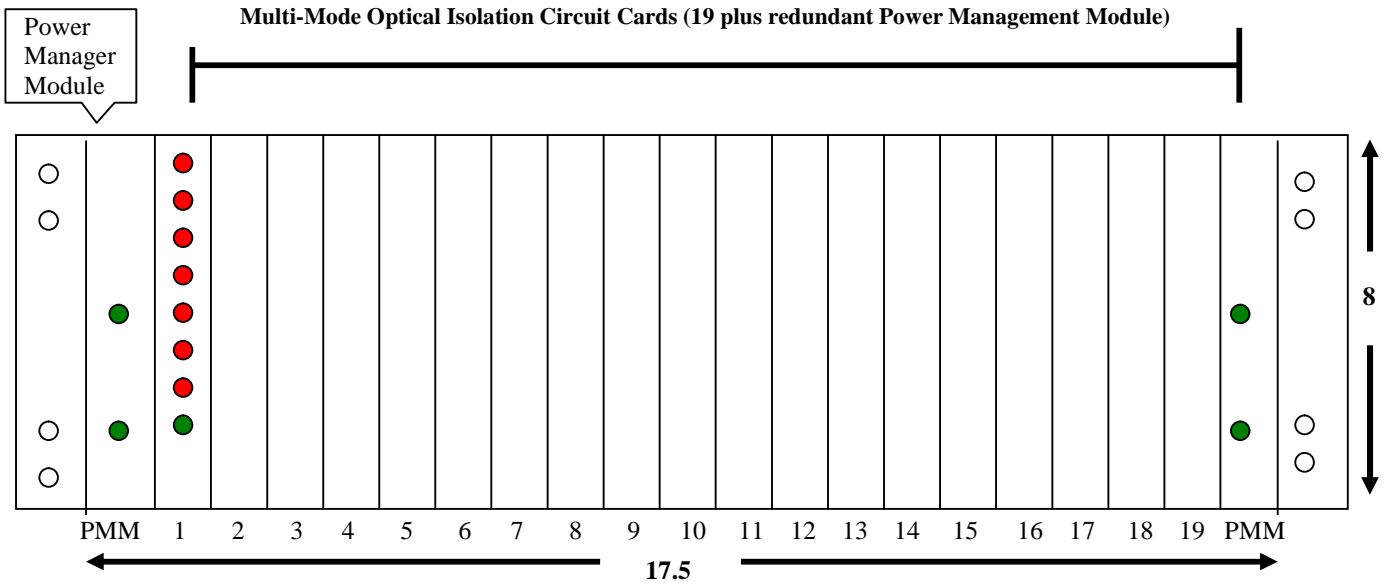
- RS-232
- EIA-530
- RS-449
- V.35
- RS-422 / X.21
- V.36
- EIA-530A
- RS-485

EIA RS232-C - CCITT V24 Interface detail circuits

PIN	SYMBOL	FUNCTION	CCITT	EIA	TO DTE	TO DCE
01	FG	FRAME GROUND	101	AA		
02	TD	TRANSMITTED DATA	103	BA		YES
03	RD	RECEIVED DATA	104	BB	YES	
04	RTS	REQUEST TO SEND	105	CA		YES
05	CTS	CLEAR TO SEND	106	CB	YES	
06	DSR	DATA SET READY	107	CC	YES	
07	SG	SIGNAL GROUND	102	AB		
08	DCD	DATA CARRIER DETECT	109	CF	YES	
15	TC	TRANSMITTED CLOCK	114	DB	YES	
17	RC	RECEIVER CLOCK	115	DD	YES	
20	DTR	DATA TERMINAL READY	108,2	CD		YES
22	RI	RING INDICATOR	125	CE	YES	
24	ETC	EXTERNAL TRANSMITTER CLOCK	113	DA		YES

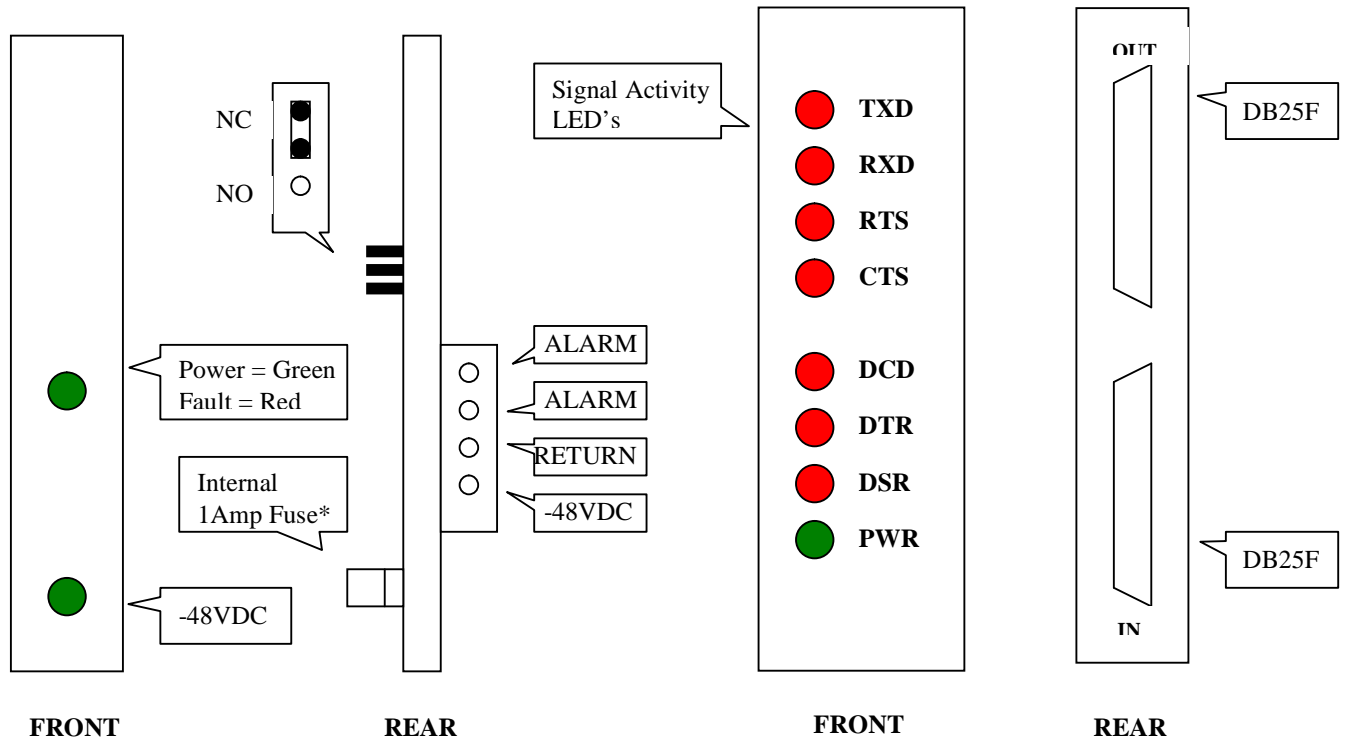
The Multimode Isolator is designed to be an extension of a DTE port. This means that the signals pass from the IN port of the Multimode to the OUT port with no change in function; i.e., the circuit ID's (CCITT or EIA) remain the same. If a "null modem" is required to interface a second DTE in the place of the normal DCE the null modem should be on the OUT port of the Multimode. This will serve to make the second DTE appear to be DCE and the interface requirements to be met.

Multi-Mode Optical Isolation Rack Mountable Chassis and Circuit Cards



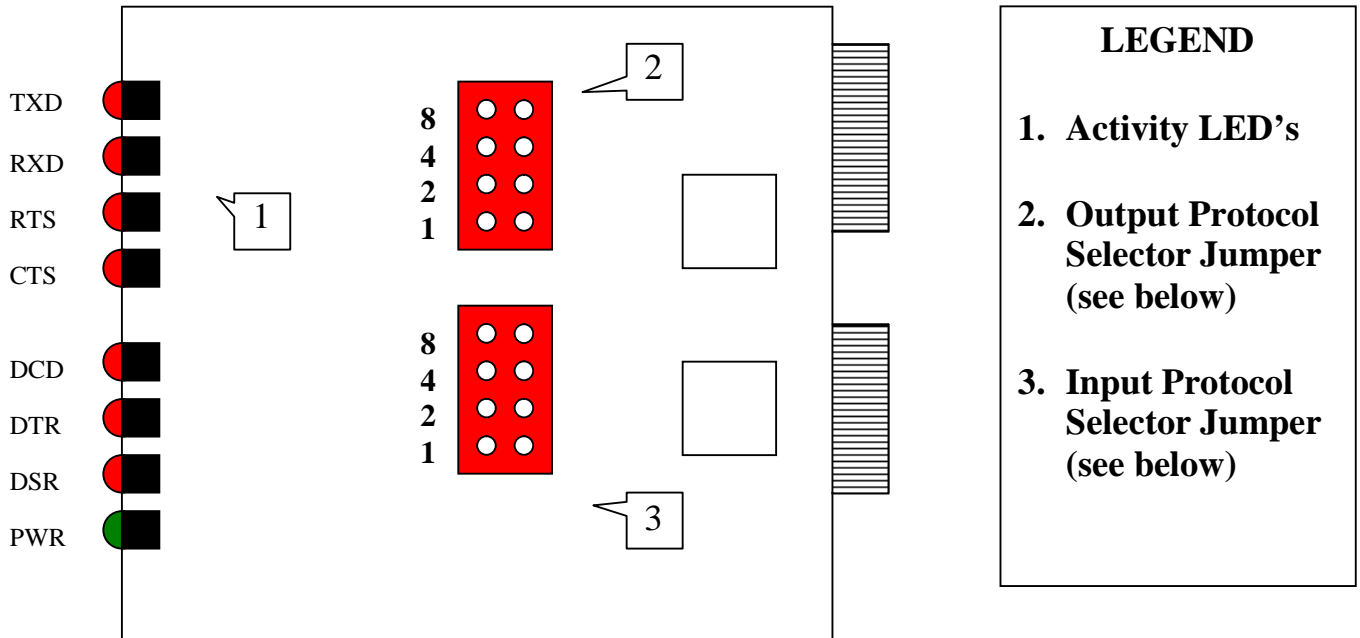
Power Management Module

Multi-Mode Optical Isolation Module

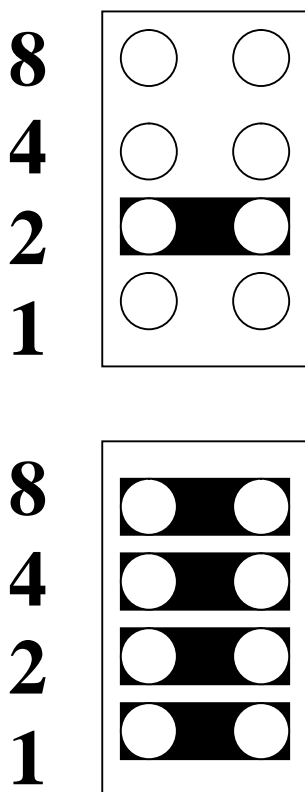


***NOTE:** Unit ships with spare internal 1 Amp Wickman Micro Fuse.

Multi-Mode Optical Isolation Module



Input / Output Selector Jumpers



Jumper Assignments

<u>Mode</u>	<u>Short Pins</u>
RS232	2
RS422 w/Term	4
RS422 No Term	4, 1
RS449	8, 4
EIA530	8, 4, 2, 1
V.36	4, 2
V.35	8, 4, 2
Single Ended L/B	8, 2
Differential L/B	8, 2, 1

NOTE: The example on the left shows Pin 2 on the output shorted for RS232 operation and pins 8, 4, 2, 1 on the input shorted for EIA530 operation .

Installation

Mount the chassis with the enclosed brackets, wire (20AWG) from the terminal blocks on the rear of the Power Management Modules (PMM) to a local fuse panel and insert 1.3Amp fuses. The unit comes equipped with a dual post ground lug that should be wired (10AWG) to a bare spot on the associated relay rack. The terminal blocks have two scan point alarm leads. The unit ships with the leads in the ‘normally closed’ position but may be changed to ‘normally open’ by moving the jumper on the PMM (see next page diagram) and setting the scan point alarm switch on the backplane to the desired position. The scan point alarms should only be wired to the primary PMM (TB1) on the right rear of the chassis. Set the Multi-Mode Optical Isolation Modules for the desired Input and Output Hardware Interfaces by removing the module and setting the associated jumpers. Cable the Network Elements to the bottom DB25 connector (DCE) at rear of the MMOI. Cable the top DB25 connector to the network. The bottom connector is the Input (DCE) and the top is the Output (DTE) (see diagrams).

Fault and Alarm Conditions

A defective individual Multi-Mode Isolation Circuit Card will cause the fault light on the Power Manager Module to turn from green to red. This condition will also bring in an alarm at the associated scan point. The defective card will have no LEDs lit and can be replaced with the power on. Caution should be exercised to prevent Electrostatic Discharge (ESD). Use of a wrist strap is recommended.

A defective Power Manager Module Circuit Card will cause the LEDs on the entire chassis to go out. This condition will also bring in an alarm at the associated scan point. Prior to replacing the Power Manager Module, the fuse at the local Fuse Panel should be removed. After replacing the Power Manager Module re-insert the fuse in the local Fuse Panel. Caution should be exercised to prevent Electrostatic Discharge (ESD). Use of a wrist strap is recommended.

Part Numbers

UC-Chassis-DC

MM-1000

PM-1000

MM-ADPTR-AI

MM-CBL-35F

MM-CBL-CIS10

Description

Multi-Mode Chassis with PAF-1000

Multi-Mode Isolation and Translation Module

Multi-Mode Power / Alarm Module

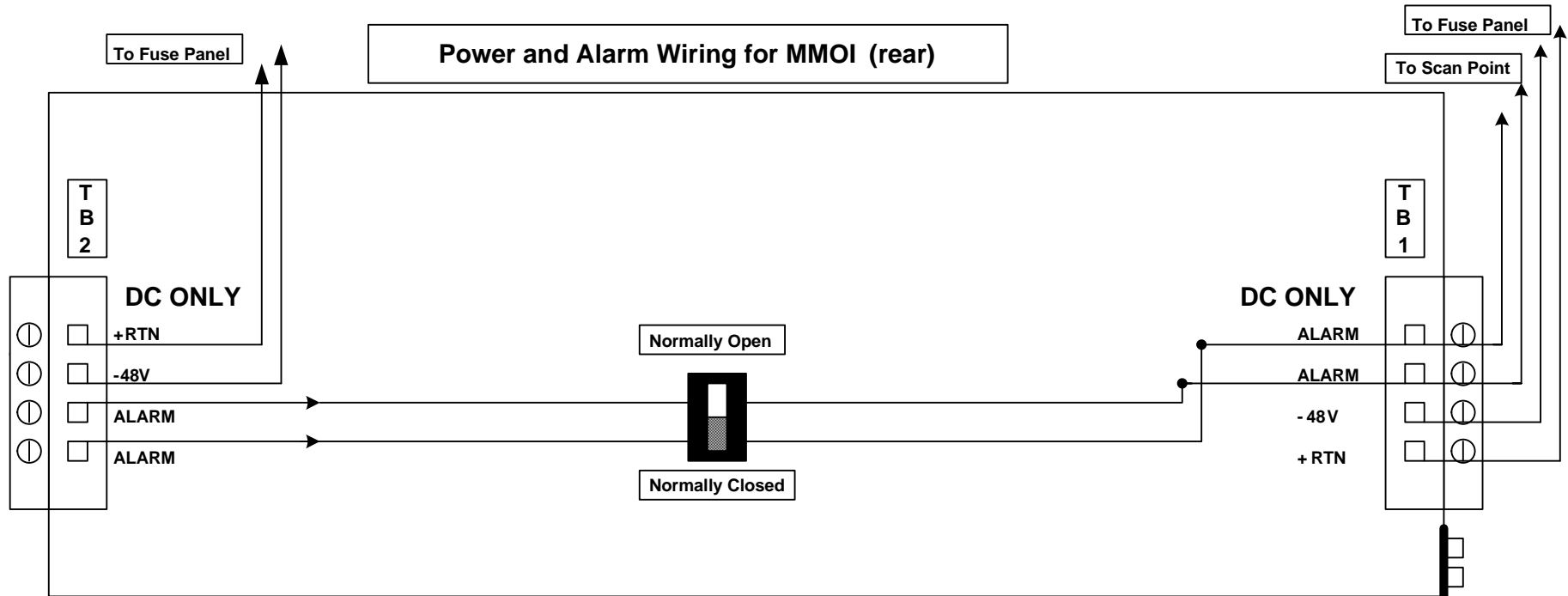
Multi-Mode AI 196 I/O Adapter

Multi-Mode DB25 to V.35 Adapter Cable

Multi-Mode Cisco DB25 to HD60 Adapter Cable

Mounting Hardware

The MMOI ships with reversible mounting brackets to accommodate 19 and 23 relay racks. For installation in a 5ESS Miscellaneous Bay the brackets should be left in the factory default position (19 inches) and the associated ‘Z’ brackets (part # PPBRKT-0063) should be added. For cable management, the 5ESS Mounting Kit ships with two (2) 25 inch towel bars (part # UC-MMTIEBAR).



Notes:

Unit Dimensions	17 1/2 (L) X 8 inches (H) X 9 (D)
InfoBank Key	O01 opto-iso panel
Ground Lug	#10 Both Ends
Ground Wire	#10 AWG (2 FT.)
Power Input	-36 to -72 VDC
Total Current Draw	.6 AMPS (at -52VDC)
Fuse Panel	1.3 AMP (recommended)
Internal Fuses	1 AMP
Power/Alarm Input	Phoenix Compression Connector

ALARMING:

2 position slide switch mounted on the backplane. Up for 'Normally Open' and Down for 'Normally Closed'. Alarms are reported out of the Primary PAF Module in Slot One. Backplane Switch and PAF Modules ship in the 'Normally Closed' Position. Alarm leads should be connected to Terminal Block 1 (TB1), which is on the right of the unit when viewed from the rear. Alarm leads from Terminal Block 2 (TB2) are NOT to be wired. They come connected to TB1 internally via the backplane.

Double hole #10 Ground Lug with inspection window, attached to 10AWG wire back to #10 Lug on Chassis

CBM Part Numbers:
MMOI-5ESSKIT

Standard Order:
Multi mode Chassis
Three (3) PAF-1000 Modules (2 Installed - 1 Spare)
Ten (10) MM-1000 Modules (8 Installed, 2 Spare)
Two (2) PPBRKT-0063 5E Mounting Brackets
Two (2) UC-MMTIEBAR 5E Cable Management Bracket

UC-Chassis-DC
MM-1000
PM-1000
MM-ADPTR-AI
MM-CBL-35F
MM-CBL-CIS10

Optional Equipment
Multi-Mode Chassis
Multi-Mode Isolation and Translation Module
Multi-Mode Power / Alarm Module
Multi-Mode AI 196 I/O Adapter
Multi-Mode DB25 to V.35 Adapter Cable
Multi-Mode Cisco DB25 to HD60 Adapter Cable

CLEI Code
LGMYAFMPAA
LGPQAG5KAA
LGPMDGADAA