Dimax MLC-32 System Module

The Panel

The Dimax MLC-32 Multi-Loop Controller combines the power of the Dimax System with the latest I/O technology of the Dimax GI series panels. The MLC-32 Control System may be used as a stand-alone panel, as a master to 30 slave I/O panels or as a peer with up to 29 other MLC-32 systems. The MLC-32's on-board peripherals support multiple concurrent users over three serial communication ports and printing through a Centronics-compatible parallel port. One serial communications port supports modem detection while another may be selected to communicate with the RS-485 standard line levels directly to unitary controllers. I/O capability includes 8 fully-universal input/output channels, 8 additional universal input channels, 8 dedicated digital inputs and 8 (or optionally 16) form 'C' relay outputs.

The Features

- All usual applications software and hardware for energy and building environment control such as:
  - System Diagnostics
  - Password/Access Manager
  - Time-of-Day Control
  - Programmed Exceptions
  - Continuous Control
  - Trend Alarms
  - History
  - Power Demand Control
  - The Dimax Control Language (DCL)
  - Alpha-numeric pager support
- MTOS real-time operating system
- The Intel 80186 16-bit microcontroller and the Zilog Z181 microcontroller
- 384K RAM
- Battery back-up for RAM and real-time clock
- EMI and RFI shielded casing
- Modem Operation (optional)
- Additional Points over a sub-network (56 with each additional GI-56 unit, 20 with each additional GI-20 unit, 8 with each additional GI-8)
- Agency approvals include CSA, NRTL, FCC, CE and UL-916

The Design

The MLC-32 unit has been designed as a complete building management and control system. It includes an embedded English language, windowed, human interface which can be accessed using any VT-220 compatible terminal or terminal emulator. System presentation can be enhanced through the use of the Dimax Visual Control++ graphics program. With the addition of other input-output units, it can monitor and control up to 1,400 points. With the addition of the CP-485 communications processor daughter board, the MLC-32 can communicate with other MLC-32, MLC-24 or MP-900 units to form a high-speed network controlling and monitoring over 43,000 points. All information is available at any node. The use of a universal directory of points throughout the network provides continuous and dependable operation without the need for external computer or disk equipment. This increases the reliability while reducing costs.

Your Solution

The Dimax MLC-32 is your solution. Installation is straight forward with quick-disconnect terminal blocks. Unique and special applications are easy to handle with DCL and universal I/O points. The MLC-32 can talk your language, right to your alpha-numeric pager.

Dimax MLC-32 System Module: Detailed Specifications

Logic Specifications

Main Processor Section

- Intel 80186 highly-integrated 16-bit processor
- 384K RAM, 640K EPROM
- 3 serial ports, RS232 9600 Baud
- 1 serial port may be used with external modem
- automatic modem detection and configuration
- 1 serial port may be configured as RS-485 for connection to ASI or N2 (Johnson) bus
- 1 parallel port, Centronics printer compatible
- Battery backup of RAM and real-time Clock for 7 days minimum
- Optional add-on communication module CP-485 allows peer-to-peer network, 512K Baud
- MTOS (INDUSTRIAL PROGRAMMING INC.) real-time operating system
- Diagnostics:
  green LED = "OK"
  yellow LED = attention required
  red LED = service required

I/O Processor Section

- Zilog Z181 highly-integrated 8-bit processor
- 32K RAM, 32K EPROM
- self-configured as node 1 on Dimax sub-network

Universal I/O (channels 1 through 8)

Digital Inputs	Dry contacts, voltage sourced by MLC-32 Wet contacts to 10VDC Pulsed input (2Hz, 50% duty cycle)
Digital Outputs	TTL level output Relay drive capability (18mA, 900 ohm relay coil)
Analog Inputs	0-10VDC voltage 0-20mA current 10-100K ohm, 3-wire resistance
Analog Outputs	0-10V (10mA maximum) 0-20mA (750 ohm maximum)
DIMAX TOS	1K ohm RTD, LED, push-button
DIMAX QUAD	10K thermistor, LED, push-button, adjust slider

Universal Inputs (channels 9-16)

Digital Inputs	Dry contacts, voltage sourced by MLC-32 Wet contacts to 10VDC Pulsed input (2Hz, 50% duty cycle)
Analog Inputs	0-10VDC voltage 0-20mA current 10-100K ohm, 3-wire resistance
DIMAX TOS	1K ohm RTD, LED, push-button
DIMAX QUAD	10K thermistor, LED, push-button, adjust slider

Digital Input (channels 17-24)

Digital Input - Dry	MLC-32 sources 5VDC @ 1.5mA
Digital Input - Wet	TTL logic levels, 40V maximum input
Pulse Input	Input Frequency up to 20Hz with 25mS minimum pulse width (Channel 17 can edge-detect up to 15kHz.)

Relay Output (channels 33 through 48)

Digital Output	Form 'C' relays on board (expandable with RM-8 module)

Power Supply

- Requires 24VAC from dedicated 40VA transformer
- +/- 10% line voltage variation tolerance
- Battery backup maintains clock and RAM for 7 days minimum
- Battery voltage is monitored for backup status.

Voltage Tap

9 to 24 VDC, 200Ma, adjustable voltage source for powering external sensors or small actuators

Dimensions

- Enclosure 21.25" x 12.75" x 3.63" (54 x 32.4 x 9.5 cm)
- Printed Circuit Board 16.25: x 10" (41.3 x 25.4 cm)

APPLICATION SOFTWARE MODULES

- Embedded human interface - Full screen interface available on any personal computer running a VT-220 compatible terminal emulator
- Point Configuration - Point database setup - 0n line allows instant access, instant change
- Dimax Control Language (DCL) - Allows custom control and printing directly from the MLC-32 panel
- Password/Access Manager - Parts of the human interface or specific points may be denied for up to 8 groups
- Time of Day - Control output points or start programs by time clock
- Power Demand & Consumption - Control of power demand
- Trend - Any value, real or calculated
- Alarm - All points are scanned for alarm conditions based on value and fault state
- Modem Control - Alarms may be directed by modem to remote PCs, printers, numeric and alpha-numeric pagers

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