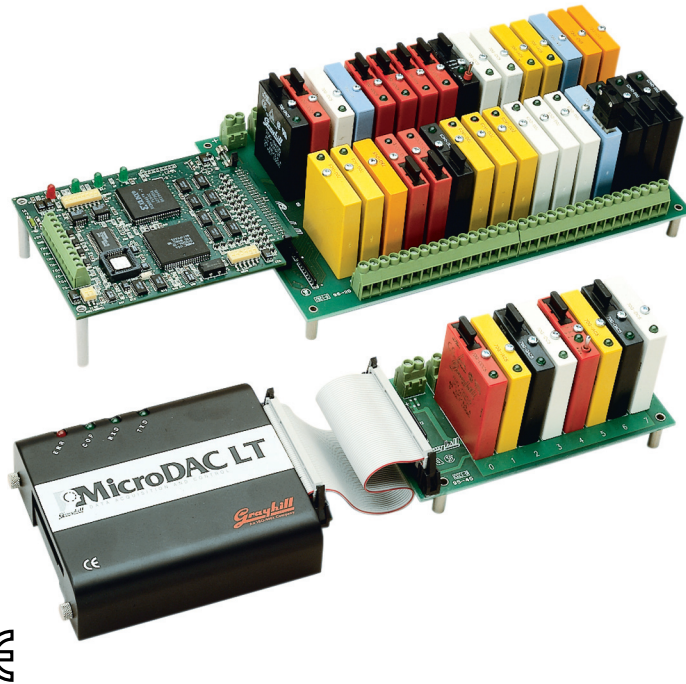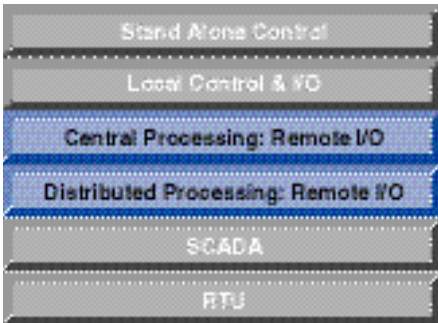# CONTROLLERS
MicroDAC LT (Optomux)

FEATURES
- Each Unit Controls/Monitors up to 32 Analog (G5 Only) and/or Digital I/O Modules
- Executes On-Board Programs Created With Borland C
- Network up to 64 MicroDAC LTs per Host Serial Port, Spanning as Much as 4000 Feet
- Communicate Over RS-422 /485 at Speeds From 1200 Baud to 115.2 KB
- 100% Optomux Compatible, With Expanded Command Set
- I/O Update Rates of 500 µSec per 32 Digital I/O, and 10 mS per Analog Input or 2 Analog Outputs
- 64-Bit Floating Point Math

APPLICATIONS

Stand Alone Control

Local Control & I/O

Central Processing: Remote I/O

Distributed Processing: Remote I/O

SCADA

RTU

GENERAL DESCRIPTION
MicroDAC LT is a low cost version of MicroDAC for customers who don't need all of the features of MicroDAC. Missing are the battery back-up for the RAM memory, real-time clock, RS-232, and SBX ports. The DIN Rail Mountable metal enclosure is optional. ECP routines written for MicroDAC can be easily transferred to MicroDAC LT and vice versa. By combining MicroDAC, MicroDAC LT and ProMux the cost/performance of a distributed control or data acquisition network is optimized for price and performance.

ANALOG & DIGITAL I/O
MicroDAC LT connects directly to any 8,16,24, or 32 module mounting rack with a 50-pin header. If connected to a G5 rack, any combination of analog and digital I/O modules may be used. Standard and Mini racks permit only a combination of digital modules. MicroDAC LTs can be networked to a host PC which execute programs that monitor the input signals and control the outputs. In addition to simple ON/OFF instructions, commands are included which permit you to:
- Sample analog signals at 10 mS per input
- Flag values above or below prescribed levels
- Capture min/max values
- Calculate the average input signal levels
- Provide linearized thermocouple and RTD temperature values
- Determine the width of input pulses
- Count pulses at frequencies up to 1000Hz
- Detect rising or falling edges
- Latch momentary input events
- Set the level of analog outputs
- Provide delayed-on or delayed-off outputs

COMMUNICATIONS
The host computer and MicroDAC LT(s) communicate serially over one or two pair of twisted wires per RS-422/485 in a multi-drop configuration. They use Optomux™ ASCII format to code the command and the response messages. Application programs running on the host computer issue commands and then await responses from the MicroDAC. The communications speed is selectable between 1.2 and 115.2 KBaud. Each controller on the network is assigned a unique base address. The entire network can span 4000 feet.

EMBEDDED CONTROL PROGRAMS
By specifying MicroDAC LT(s) with the optional 64KB of flash memory, you can develop and download C language programs to any of the networked controllers.

Even while an Embedded Control Program (ECP) is running on MicroDAC LT, any Optomux™ command it receives from the host will be processed as usual, which allows you to delegate some or all of the control and data acquisition responsibility from the host computer. This reduces communications time and improves system response.

For embedded or stand-alone applications, downloaded ECP routines can be initiated on power-up.
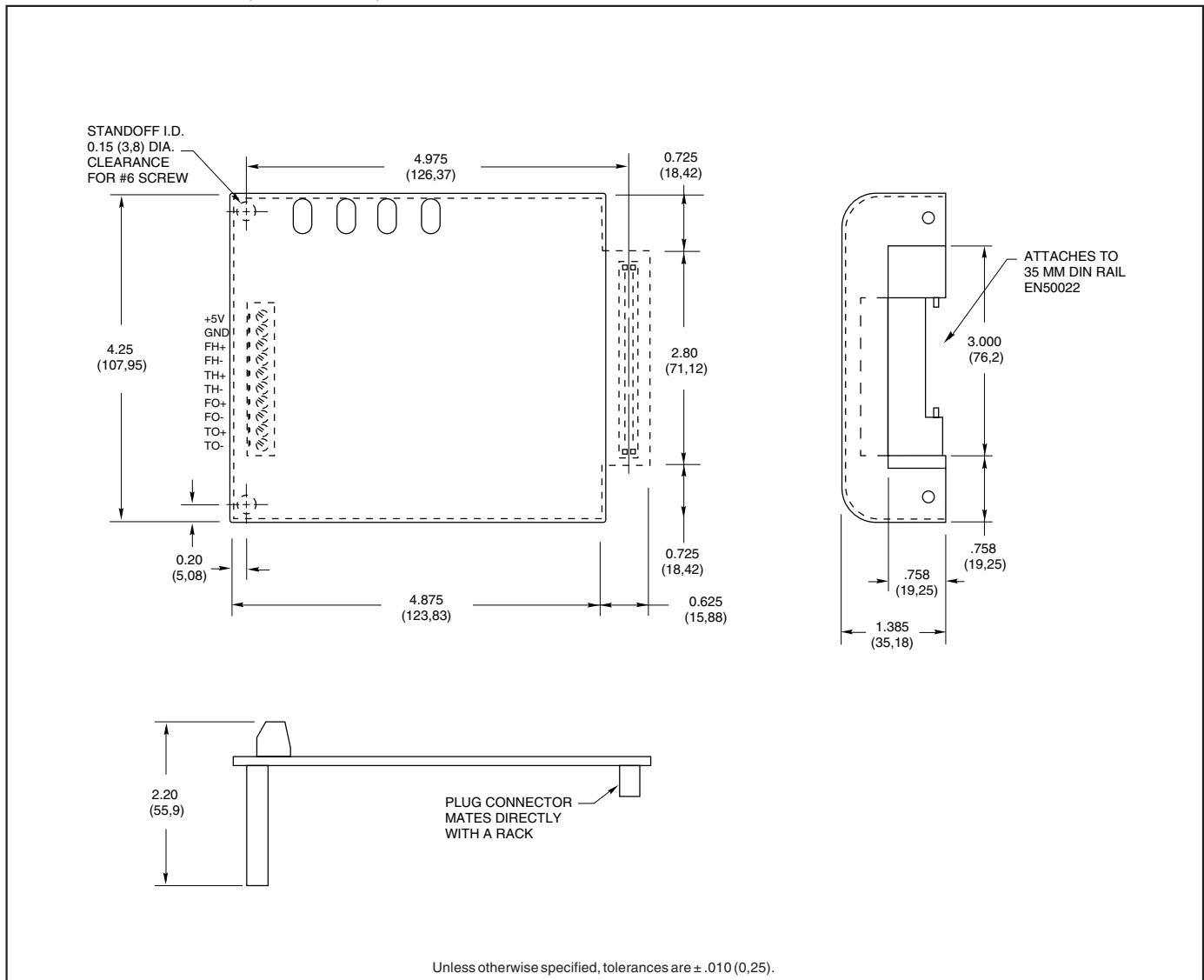
Libraries and the appropriate download utility are included with the ECP Programmers Manual.

SOFTWARE
Software drivers are available which simplify the task of interfacing host programs written in. Visual Basic or C to the MicroDAC network. Sample programs, set-up and debug utilities are included on the disk with the drivers. Interface drivers for most third party software packages are available through their distributors. Our MicroDAC DDE Server dramatically simplifies data sharing between MicroDACs and Windows applications, such as Microsoft Excel (see Controller Software). Our DLL will assist you in building custom Windows Man-Machine Interfaces or control programs using Visual Basic, Visual C/C++, or Borland compilers.

[1] With optional enclosure.

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DIMENSIONS In inches (and millimeters)

STANDOFF I.D. 0.15 (3,8) DIA. CLEARANCE FOR #6 SCREW

4.975 (126,37)

0.725 (18,42)

ATTACHES TO 35 MM DIN RAIL EN50022

4.25 (107,95)

+5V
GND
FH+
FH-
TH+
TH-
FO+
FO-
TO+
TO-

2.80 (71,12)

3.000 (76,2)

0.20 (5,08)

4.875 (123,83)

0.725 (18,42)

0.625 (15,88)

.758 (19,25)

.758 (19,25)

.758 (19,25)

1.385 (35,18)

2.20 (55,9)

PLUG CONNECTOR MATES DIRECTLY WITH A RACK

Unless otherwise specified, tolerances are ± .010 (0,25).

SPECIFICATIONS

Power Supply: 4.75 to 5.25 Vdc
Supply Current (less modules): 300 mA
Operating Temperature: 0 to 70°C
Humidity: 95% non-condensing
Microprocessor: V25 @ 10 MHz
Housing Material: Painted steel
Connections:
  RS-422/485: 10 position terminal block
  Rack: 50-pin female plug
Serial Data:
  Format: 10-Bit ASCII, 1 Start, 1 Stop, 8 Data
Integrity: Message Checksum or 4 Pass + CS
Range of Network: Compliant with EIA/TIA RS485-A (1 standard load per controller). Operates in multi-drop mode. 64 DIP switch selectable addresses. May require RS485 repeaters for lengths over 4000 feet or more than 32 controllers. Consult factory for special configurations.

ORDERING INFORMATION

Part Number	Description
MicroDAC LT Controllers	
72-MDL-32ADC	Analog/Digital with 64K flash for C ECP storage
MicroDAC LT User's Manuals and Software	
72-UMM	Introduction to MicroDAC
72-UMM-D	Driver development and protocol definition. Includes driver source code
72-UMM-DDE	Optomux DDE Server for Windows 3.1
72-UMM-DLL	Optomux DLL for Windows 3.1
72-UMM-DLL32	Optomux DLL for Windows 95/98/NT
72-UMM-E	C language ECP manual with libraries
72-UMM-H	Programmers manual with Basic and C host drivers & examples
72-UMM-IL	Hardware installation and set-up. Includes set-up and debug programs

Available from your local authorized Grayhill Distributor.

For prices and discounts, contact your local sales office, an authorized Distributor, or Grayhill.

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System 50
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