

MCL488

MULTI-CHANNEL LOADS

Plug & Play



FEATURES

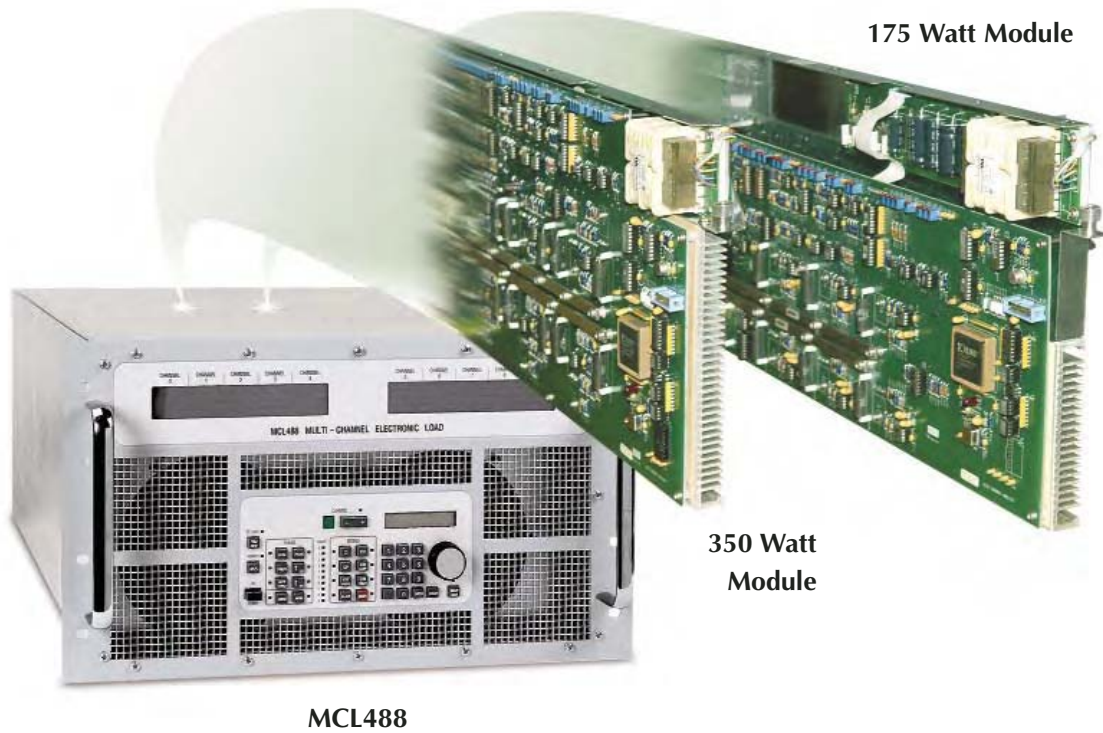
- **Front Panel, Analog IEEE 488, or RS232 Control**
- **60 Amp, 350 Watt Modules
30 Amp, 175 Watt Modules**
- **Channels in 50V, 100V, 400V, or 600V Configurations**
- **Paralleling Channels for Simultaneous control**
- **Operation to a Fraction of a Volt**
- **Current, Resistance, Voltage and Power Loading**
- **Pulse Operation, Including Three Step Staircase**
- **Channels May be Easily Added in the Field**

PRODUCT OVERVIEW

The MCL488 series of multi-channel electronic loads are ideal for ATE system and bench-top applications that require a multiple channel load with maximum flexibility. Each system consists of a sub-rack housing and modules. The load modules are rated at 50V, 100V, 400V or 600V and are rated for 175 watt and 350 watt operation. Up to 10 modules fit into a 19"W x 10.5"H x 23"D sub-rack. The MCL488 is easily upgraded in the field by adding modules.

Once in the sub-rack, the modules are user configurable. The load modules can be paralleled using the paralleling straps provided, configured either from the front panel or computer bus, and controlled as a single channel. 350 watt and 175 watt modules may be used in any configuration, providing maximum flexibility. All functions that are available for a single module are available in the multi-channel configuration.

Complete operation including Constant Current, Constant Resistance, Constant Power and Constant Voltage is available when operating a single module or when the modules are paralleled. All functions, including linking modules in parallel through software, are programmed via the user-friendly front panel, IEEE-488 bus or the optional RS232 interface. The front panel simultaneously displays voltage, current, wattage and mode for each installed module.



The user enabled password protection locks out the front panel for ATE applications. Front panel control can be restored by entering a user selectable four-digit pass code.

CHANNEL 0	CHANNEL 1	CHANNEL 2	CHANNEL 3	CHANNEL 4
10.54V	5.04V	10.54V	5.04V	V
12.8A	115.1A	12.8A	115.1A	A
135W	580W	135W	580W	W
CP*	CI* WF	CP*	CI* WF	<-LINK

CHANNEL 5	CHANNEL 6	CHANNEL 7	CHANNEL 8	CHANNEL 9
10.54V	5.04V	10.54V	5.04V	V
12.8A	115.1A	12.8A	115.1A	A
135W	580W	135W	580W	W
CP*	CI* WF	CP*	CI* WF	<-LINK

CHANNEL 5

CI: 60.00 A
TYPE: 400V/60A

DC LOAD ON/OFF

REMOTE LOCAL

AC POWER

PULSE: RUN, PEAK, FREQ, LO, DUTY CYCLE, HI, MEM, MENU

FAULT: 0-9

MODES: CI, CV, CP, CR LOW, CR HIGH, SLAVE, SHORT

1 2 3 4 5 6 7 8 9 0 ENTER CLEAR MAN ADJ

ANALOG MODE

Ext. Prog: 0 to 10 Volts input yields 0 to full scale loading in all operating modes.

Input Impedance: 330K Ohms

Prog. Response: Limited by internal adjustable slew rate limiter

Pulse Mode: Two level or three level pulsing available in any mode.

Min Pulse

Duration(Any level): 10mSec

Max Pulse

Duration(Any level): 16 Sec or 71 Min. with reduced resolution and minimum duration

Resolution: 1mSec

Adjustable Slew Rate:

Max: 0 to full scale in 10 μ s

Min: 0 to full scale in 10ms

OUTPUT SIGNALS

Current Sample Output:

Scaling: 10 Volts = full scale Current

Accuracy: $\pm 0.5\%$ of full scale

PROTECTION

Current Limit: 105% of full scale current

Power Limit: Approximately 370 Watts

Overvoltage: Load disconnect at approximately 105% of full scale voltage

Thermal: Load disconnect at internal temperature of 105 $^{\circ}$ C

Undervoltage: Load inhibited at less than 1 Volt, when enabled

METERS

Voltmeter Accuracy: $\pm 0.25\%$, ± 1 Digit

Ammeter Accuracy: $\pm 0.25\%$, ± 1 Digit

Wattmeter Accuracy: $\pm 0.5\%$, ± 2 Digits

IEEE-488 READBACKS

Current:

Resolution: 1/4000 of Full Scale

Accuracy: $\pm 0.5\%$ ± 1 Digit

Voltage:

Resolution: 1/4000 of Selected Full Scale

Accuracy: $\pm 0.5\%$ ± 1 Digit

Power:

Resolution: 87.5 mW

Accuracy: $\pm 0.5\%$ ± 1 Digit

MECHANICAL

Module Size: 1.58"W x 10.5"H x 24"D

40mm W x 267mm H x 610mm D

Module Weight: 12 lbs. / 5.44kg

Chassis Size: 19"W x 10.5"H x 24"D

483mm W x 267mm H x 610mm D

Rack Mountable

Full Chassis Weight: 125 lbs. / 56.70kg

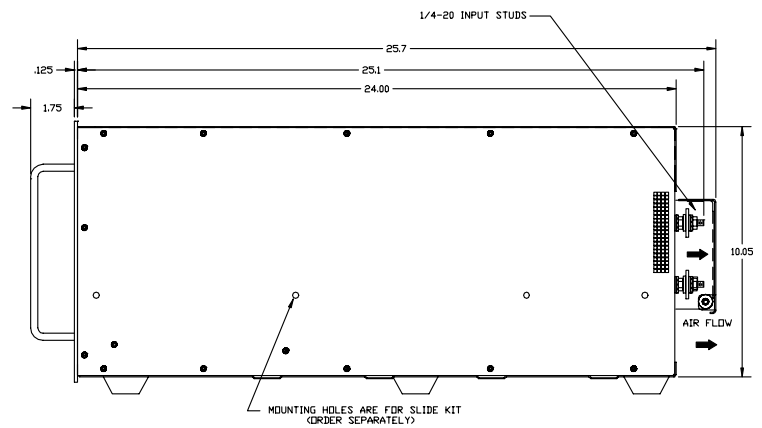
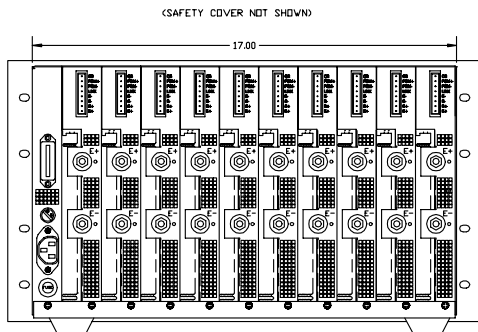
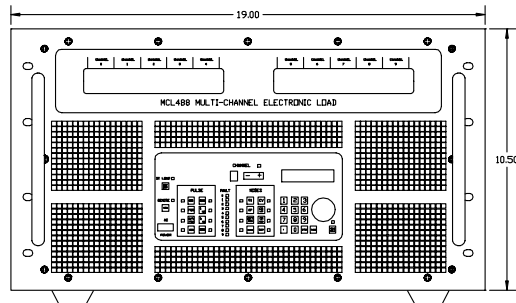
MISCELLANEOUS

AC Input: User Selectable

110VAC/220VAC, $\pm 10\%$, 48 - 62Hz @ 350W

Ambient Temp: 0 $^{\circ}$ C to 40 $^{\circ}$ C

CHASSIS OUTLINE



MCL488 50-100-350

OPERATING MODES

Constant Current: 0 to 100A

Prog. Accuracy: $\pm 0.50\%$

Regulation: 100mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 200 A/V

Low Res. Mode: Infinite - 0.005Ω

Low A/V Mode: 0 - 20 A/V

High Res. Mode: Infinite - 0.05Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 50V

Prog. Accuracy: $\pm 0.50\%$

Regulation: $\pm 0.075V$

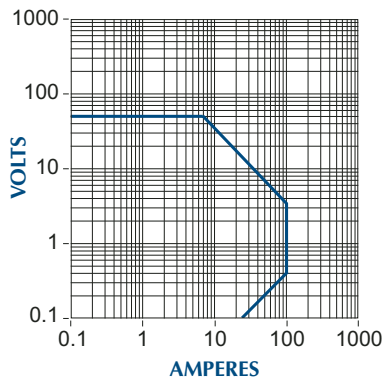
Constant Power: 0 to 350 Watts

Prog. Accuracy: 10 Watts

Regulation: 10 Watts

Short Circuit: 0.004Ω Max.

INPUT CHARACTERISTICS:



MCL488 100-15-350

OPERATING MODES

Constant Current: 0 to 15A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 2mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 15 A/V

Low Res. Mode: Infinite - 0.666Ω

Low A/V Mode: 0 - 1.5 A/V

High Res. Mode: Infinite - 6.66Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 100V

Prog. Accuracy: $\pm 0.5\%$

Regulation: $\pm 0.15V$

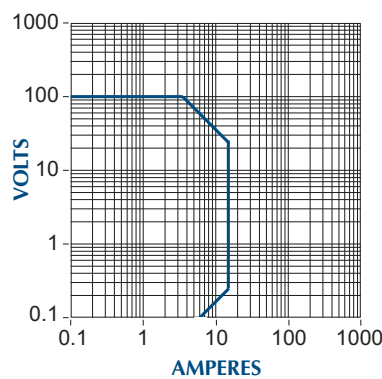
Constant Power: 0 to 350 Watts

Prog. Accuracy: 10 Watts

Regulation: 10 Watts

Short Circuit: 0.016Ω Max.

INPUT CHARACTERISTICS:



MCL488 100-60-350

OPERATING MODES

Constant Current: 0 to 60A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 60mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 60 A/V

Low Res. Mode: Infinite - 0.0167Ω

Low A/V Mode: 0 - 6 A/V

High Res. Mode: Infinite - 0.167Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 100V

Prog. Accuracy: $\pm 0.5\%$

Regulation: $\pm 0.15V$

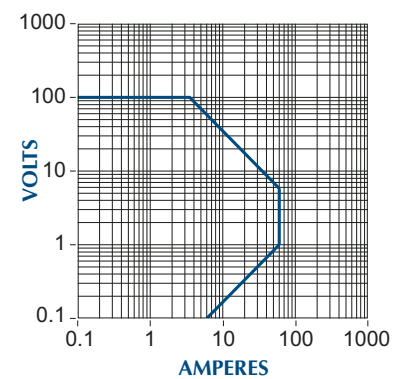
Constant Power: 0 to 350 Watts

Prog. Accuracy: 10 Watts

Regulation: 10 Watts

Short Circuit: 0.016Ω Max.

INPUT CHARACTERISTICS:



MCL488 400-60-350

OPERATING MODES

Constant Current: 0 to 60A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 60mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 15 A/V

Low Res. Mode: Infinite - 0.0667 Ω

Low A/V Mode: 0 - 1.5 A/V

High Res. Mode: Infinite - 0.667 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 400V

Prog. Accuracy: $\pm 0.25\%$

Regulation: $\pm 0.6V$

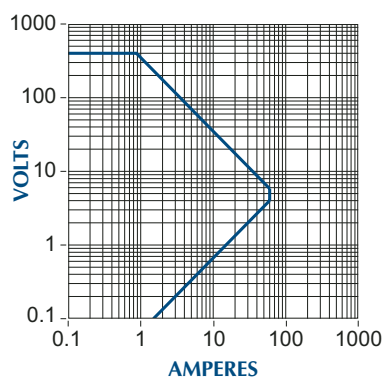
Constant Power: 0 to 350 Watts

Prog. Accuracy: 10 Watts

Regulation: 10 Watts

Short Circuit: 0.08 Ω Max.

INPUT CHARACTERISTICS:



MCL488 600-20-350

OPERATING MODES

Constant Current: 0 to 20A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 20mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 3 A/V

Low Res. Mode: Infinite - 0.333 Ω

Low A/V Mode: 0 - 0.333 A/V

High Res. Mode: Infinite - 3 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 600V

Prog. Accuracy: $\pm 0.5\%$

Regulation: $\pm 0.9V$

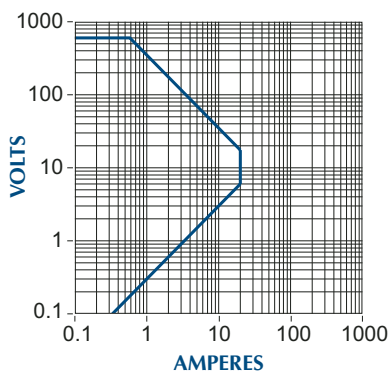
Constant Power: 0 to 350 Watts

Prog. Accuracy: 10 Watts

Regulation: 10 Watts

Short Circuit: 0.33 Ω Max.

INPUT CHARACTERISTICS:



MCL488 100-30-175

OPERATING MODES

Constant Current: 0 to 30A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 30mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 30 A/V

Low Res. Mode: Infinite - 0.0333 Ω

Low A/V Mode: 0 - 3 A/V

High Res. Mode: Infinite - 0.333 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 100V

Prog. Accuracy: $\pm 0.50\%$

Regulation: $\pm 0.15V$

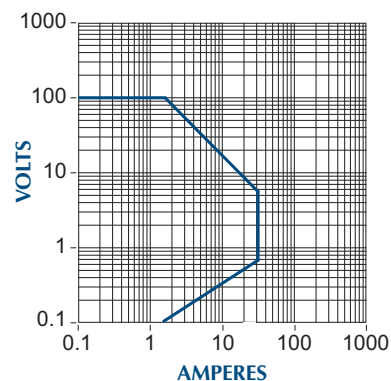
Constant Power: 0 to 175 Watts

Prog. Accuracy: 5 Watts

Regulation: 5 Watts

Short Circuit: 0.06 Ω Max.

INPUT CHARACTERISTICS:



MCL488 400-30-175

OPERATING MODES

Constant Current: 0 to 30A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 30mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 7.5 A/V

Low Res. Mode: Infinite - 0.1333 Ω

Low A/V Mode: 0 - .75 A/V

High Res. Mode: Infinite - 1.333 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 400V

Prog. Accuracy: $\pm 0.25\%$

Regulation: $\pm 0.6V$

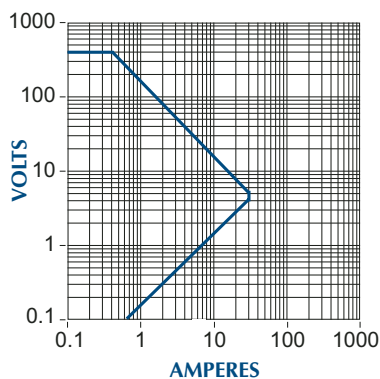
Constant Power: 0 to 175 Watts

Prog. Accuracy: 5 Watts

Regulation: 5 Watts

Short Circuit: 0.16 Ω Max.

INPUT CHARACTERISTICS:



MCL488 600-10-175

OPERATING MODES

Constant Current: 0 to 10A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 10mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 1.5 A/V

Low Res. Mode: Infinite - 0.666 Ω

Low A/V Mode: 0 - 1.5 A/V

High Res. Mode: Infinite - 6.66 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 600V

Prog. Accuracy: .5%

Regulation: $\pm 1.8V$

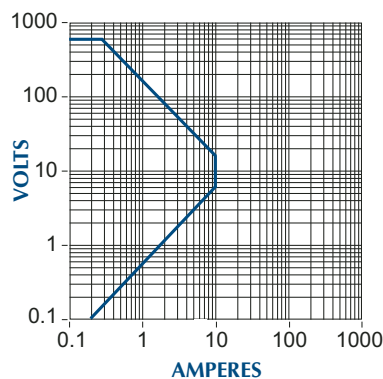
Constant Power: 0 to 175 Watts

Prog. Accuracy: ± 5 Watts

Regulation: ± 5 Watts

Short Circuit: 0.66 Ω Max.

INPUT CHARACTERISTICS:



MCL488 100-5-175

OPERATING MODES

Constant Current: 0 to 5A

Prog. Accuracy: $\pm 0.25\%$

Regulation: 5mA

Constant Resistance: Amps/Volt or Ohms

High A/V Mode: 0 - 5 A/V

Low Res. Mode: Infinite - 0.2 Ω

Low A/V Mode: 0 - .5 A/V

High Res. Mode: Infinite - 2.0 Ω

Prog. Accuracy: $\pm 3\%$ of Full Scale

Regulation: $\pm 3\%$ of Full Scale

Constant Voltage: 0 - 100V

Prog. Accuracy: $\pm 0.5\%$

Regulation: $\pm 0.15V$

Constant Power: 0 to 175 Watts

Prog. Accuracy: ± 5 Watts

Regulation: ± 5 Watts

Short Circuit: 0.06 Ω Max.

INPUT CHARACTERISTICS:

