

# DYNALOAD<sup>®</sup>

## ELECTRONIC LOAD SOLUTIONS

### AIR & LIQUID COOLED



DEMANDING APPLICATIONS DEMAND TDI POWER

# DYNALOAD® DC Electronic Loads

## Overview

When it comes to exceptional electronic loads, **precise balance of electrical power and mechanical design must translate to optimal power density and performance**, with elevated quality standards rounding out the foundation of ruggedness and reliability. For over fifty years, TDI Power has manufactured quality industrial power supplies and DC electronic loads with these principles.



## Common Features of Dynalloads

Every Dynaload® also offers **ease of use, expandability, reliability and predictable results**. The 50V models of each series are capable of sinking their full current rating down to 0.5V with operation down to 0.1V. The ultra-fast slew rate offers unmatched power supply transient testing capabilities. Common interfaces are Ethernet, IEEE488 GBIP, RS232 plus 0-10V analog control. Labview drivers are available for all models.



**Driven by the need to test our DC supply designs**, TDI Power developed our own line of electronic loads based on a paralleled power MOSFET architecture, analog and/or digital signal processing feedback loop control, extensive measurement functions, thermal management and synchronized master/slave paralleling control mode technology. Through these design efforts TDI Power gained extensive and valuable knowledge, where today we continue to retain our leadership in the industry. TDI Dynaload® high power density DC electronic loads are used for a wide variety of power source test requirements ranging from DC power supplies to fuel cells to batteries, and more. Count on TDI Power to provide a Dynaload® solution to impress and last for many years.

## DYNALOAD® DC PROGRAMMABLE ELECTRONIC LOAD OFFERINGS

- + Single channel air cooled
- + Multi-channel air cooled
- + Single channel water cooled
- + Master/Slave functionality
- + Rack Systems air cooled and water cooled

- + Ultra fast slew rate
- + Flexible duty cycle
- + Full scale range switching (three selectable)
- + Assortment of performance indicators
- + Exceptional self-protection circuitry
  - + Over voltage (OV)
  - + Over current (OC)
  - + Reverse polarity
  - + Thermal protection (with auto-disconnect)
- + Simultaneous LED display of voltage current and power
- + 10+ Memory Presets for Saving Load Profiles
- + Remote voltage sense
- + 120V/230VAC 50/60Hz

## Modes of Operation

- + **CI Constant Current**  
Current does not change with voltage
- + **CR Constant Resistance**  
As voltage increases, current increases
- + **CP Constant Power**  
Load changes impedance to maintain constant power
- + **CV Constant Voltage**  
As voltage reaches set point, load sinks current
- + **PM Pulse Mode**  
Pulse for transient tests

## Benefits

- + INCREASE TEST SYSTEM THROUGHPUT
  - + LOWER COST OF OWNERSHIP
  - + DECREASE SYSTEM DEVELOPMENT TIME
  - + INCREASE SYSTEM RELIABILITY
  - + INCREASE SYSTEM FLEXIBILITY
  - + STABLE OPERATION TO 0.1 VOLTS\*
  - + REAR DC CONNECTION TERMINAL FOR HIGH POWER AND ATE APPLICATIONS
- \*50V MODELS

## Applications / Markets

- + Fuel Cells
- + Solar Cells/Panels
- + DC Converters
- + Power Supplies
- + Batteries
- + Alternators
- + UPS
- + Ultra capacitors
- + Automotive
- + Avionics
- + Military
- + Fuse testing
- + Research/Universities

## NEW XBL GEN2 Series Single Channel Air Cooled

The XBL GEN2 Series are state-of-the-art microprocessor based air cooled electronic loads. 16 bit ADCs and DACs offer **high speed control along with 0.1% set point precision**. Intuitive front panel and encoder enables quick and easy mode selection and set point dial-in.



- + **IWV TECHNOLOGY**  
enables hot switching into preset loads without the classic in-rush current
- + **CAN BUS AUTO SYNC PARALLELING**  
provides seamless master/slave operation in load banks
- + Individual FET fuse trace ride through
- + **XM PLUS COMMAND** - for extensive impedance testing
- + Included ports: IEEE488 GBIP, RS232 plus 0-10V analog control
- + Front panel displays voltage, current and wattage
- + Remote control panel and monitoring via Ethernet (stand alone app, HTTP or terminal TCP/IP)
- + **CLOSED BOX CALIBRATION**
- + Choose from models ranging from 800W – 6000W

## NEW XBL Liquid Series Single Channel Water Cooled

The NEW XBL Liquid Series of single channel water-cooled rack-mount programmable DC electronic loads offer the same features and high accuracy as the XBL air cooled Dynaloads- with the added benefit of higher power density (up to 12KW) in a compact 3U or 2U height package. When paralleled with XBL water-cooled slaves, systems of 120KW are achievable in a single DynaRack. The XBL Liquid Series offers **compact, quiet operation and is effective for high power, dynamic test requirements**.

Ideal for fuel cell/stack applications, the XBL Liquid Series also offers a standard current interrupt feature and are compatible with frequency response analyzers (FRA) to identify and quantify the impedance spectrum of a fuel cell.



- + Master front panel displays voltage, current and wattage, with controls
- + Low water flow requirements (3GPM @ 10°C per load)
- + Parallel and synchronization capabilities
- + Self-configuring based on number of slaves in use
- + 50V, 100V, 400V models

### RBL488 Series Single Channel Air Cooled

The RBL488 Series of single channel air cooled electronic loads feature 3 voltage scales and 3 current scales for **high accuracy and precision control** with 12 bit resolution. 50V models are designed to draw current down to 0.1V, for low voltage test applications. Rack mount and bench top units offer greater flexibility to suit a variety of requirements – from single standalone use, to synchronized analog paralleling of master and slave(s).



- + Easy to use interface and dial control for sweeping frequency and duty cycle
- + Included ports: Ethernet, IEEE488 GBIP, RS232 plus 0-10V analog control
- + Large terminal rear connections
- + Front panel displays voltage, current and wattage.
- + 50V, 100V, 400V, 600V, 1000V models available
- + **Choose from models ranging from 800W – 6000W**

**SYSTEMS  
UP TO 120KW  
AVAILABLE**

**FOR DETAILED SPECIFICATIONS  
ON ANY OF THE DYNALLOADS  
MENTIONED IN THIS BROCHURE,**

please contact us or visit us at [TDIpower.com](http://TDIpower.com)  
and click on Dynaload Electronic Loads

### MCL488 Series Multi-Channel Air Cooled

The MCL488 Series of multi-channel electronic loads **enable expandability** of your system as your test requirements change. The Chassis can be integrated with 175 watt and/or 350 watt modules, with up to 10 modules fitting in a single chassis.

- + Modules can be linked together or used as independent channels
- + Front panel displays voltage, current and wattage of all ten channels simultaneously
- + Included ports: IEEE488 GBIP, RS232 plus 0-10V analog control
- + Pulse operation including 3 step staircase
- + Full front panel control with lockout
- + 50V, 100V, 400V, 600V models available
- + Up to 3,500 Watts in a single chassis



### DynaRack Rack Systems

The TDI Power line of Dynaracks and accessories are the **ideal solution when paralleling large quantities of Dynaload air or water cooled loads**. DynaRack frames are constructed of extruded aluminum with cast corner knuckles. This intelligent design enables configuration of virtually any 19" size enclosure with industry leading speed and agility.

- + Flush mount front
- + Easy rear access
- + Heavy duty caster wheels with leveling feet
- + Optional desktop drawer and/or sliding shelf
- + Mounting kit with slides for easy connection of loads
- + Copper Plate Bussing ridding system of stray capacitances/inductances
- + Water cooled systems include all plumbing, servos and relays
- + Standard 35, 52 and 63" cabinets available
- + **Custom Configurations available**





## ABOUT TDI POWER

TDI Power is a leading, private manufacturer of highly reliable and technologically advanced electrical power solutions. Built on a 50 year history of engineering innovation, TDI is recognized as a market driven organization that focuses on our competitive strengths to meet our customers' needs. Our diverse capabilities allow us to serve the automotive, military/aerospace, industrial, medical and test and measurement markets. Our commitment is to deliver high-end, problem solving solutions where and when needed.

From our state-of-the-art shop floor manufacturing control system, to our philosophy of conservative design practices, TDI Power's very structure is built around creating the highest possible quality products. Design Verification Testing, Highly Accelerated Life Testing (HALT), Highly Accelerated Stress Screening (HASS) and internal labs for solar and EMI testing add to our analytical capabilities and dedication to continuous improvement, higher reliability, and lower overall program costs.

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