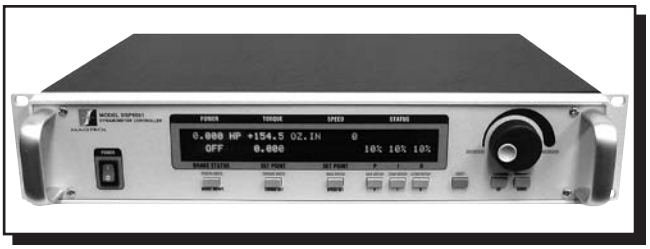
DSP6001 High-Speed Programmable Dynamometer Controller

FEATURES

- **Two Channels:** Enable the unit to support up to two testing instruments with independent or tandem configurations.
- **Built-in Alarm System:** For power, speed, torque, temperature, air flow, water flow, electrical overload and external inputs
- **Torque/Speed Analog Outputs:** For interface with a data acquisition system or strip chart recorder
- **Interfaces:** RS-232 and IEEE-488
- **High Speed Data Acquisition:** 120 torque and speed points per second via IEEE bus (approx. 60/sec. via RS-232)
- **High Quality, Easy-to-Read Vacuum Fluorescent Readout:** Displays torque, speed, power, auxiliary and PID (proportional gain, integral and derivative) values
- **Fast Full-Curve Data Acquisition:** Free-run to locked rotor in seconds
- **Speed & Torque Operating Modes:** Provide independent PID settings for improved Dynamometer control
- **Built-in Current-Regulated Supply:** For use with Hysteresis Dynamometer only
- **Adjustable Torque Units:** English, Metric and SI are standard
- **Dynamometer Overload Protection**
- **Digital Filter:** Removes undesired noise from torque signals
- **Cross Loop Function:** Allows closed loop control of brake via torque transducer
- **Programmable Digital PID Values:** Controlled and stored via M-Test Software or controlled manually
- **Saving:** Saves programmed values within configuration
- **Auxiliary ± 10 V DC Analog Input:** For additional transducer
- **Single or Multi-point Torque and Speed Stabilized Testing:** Via M-TEST 5.0 Software
- **Closed Box Calibration**
- **Rack Mounting:** 19" (482.6 mm) with handles

DESCRIPTION

Magtrol's Model DSP6001 High Speed Programmable Dynamometer Controller employs state-of-the-art Digital Signal Processing Technology to provide superior motor testing



capabilities. Designed for use with any Magtrol Hysteresis, Eddy-Current or Powder Dynamometer, Magtrol In-Line Torque Transducer or auxiliary instrumentation, the DSP6001 can provide complete PC control via the IEEE-488 or RS-232 interface. With 120 readings per second, the DSP6001 is ideally suited for both the test lab and the production line.

APPLICATIONS

In the laboratory, the DSP6001's high sample rate provides superior resolution for data acquisition and curve plotting. This allows for capturing more usable motor test data during switching, breakdown and other transitional areas of the motor test curve. For production and incoming inspection, the DSP6001 displays torque, speed and power at all times, allowing the Controller to be used as a manual stand alone unit or as part of a complete PC system.

MOTOR TESTING SOFTWARE

Magtrol's M-TEST 5.0 Software (*sold separately*) is a state-of-the-art motor testing program for Windows®-based data acquisition. Used with the Magtrol DSP6001 Controller, Magtrol M-TEST 5.0 Software provides the control of any Magtrol Dynamometer and runs test sequences in a manner best suited to the overall accuracy and efficiency of the Magtrol Motor Test System. The data that is generated by Magtrol's Motor Testing Software can be stored, displayed and printed in tabular or graphic formats, and can be easily imported into a spreadsheet.

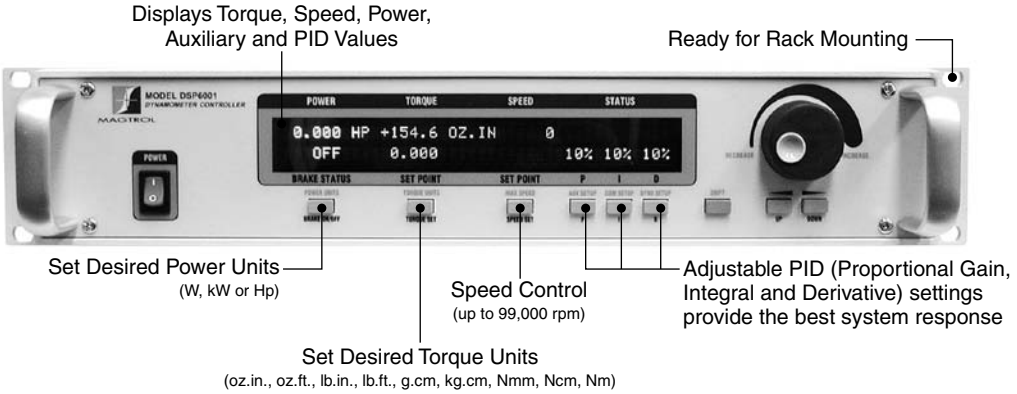
Written in LabVIEW™, M-TEST 5.0 has the flexibility to test a majority of motor types in a variety of ways. Because of LabVIEW's versatility, obtaining data from other sources (e.g. thermocouples), controlling motor power and providing audio/visual indicators is relatively easy.

Magtrol's M-TEST 5.0 Software is ideal for simulating loads, cycling the unit under test and motor ramping. Because it is easy to gather data and duplicate tests, the software is ideal for use in engineering labs, production testing and incoming/outgoing inspection.

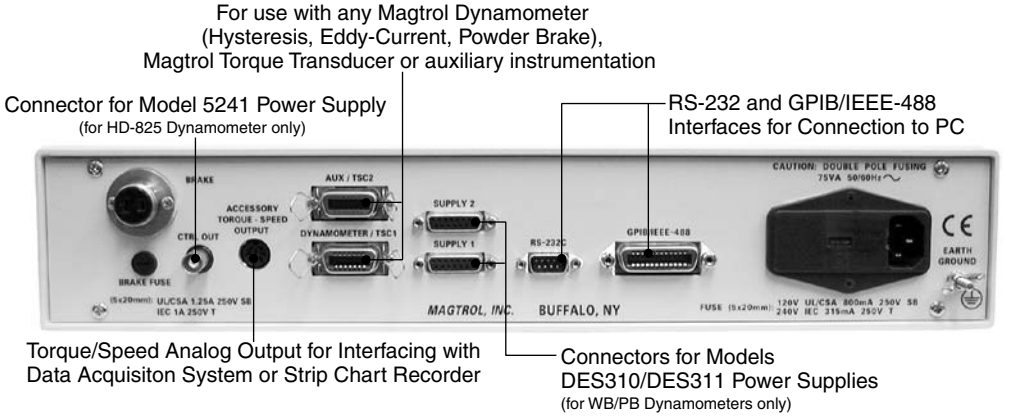
MEASUREMENT CHARACTERISTICS	
Maximum Torque	10,000 units, ±5 V TSC1, ±10 V TSC2
Maximum Speed	99,999 rpm
Accuracy	Speed: 0.01% of reading from 10 rpm to 100,000 rpm TSC1: 0.02% of range (±1 mV) TSC2: 0.02% of range (±2 mV)
ELECTRICAL CHARACTERISTICS	
Fuses (5 × 20 mm)	Brake: UL/CSA 1.25 A 250 V SB IEC 1.00 A 250 V T Power (120 V): UL/CSA 800 mA 250 V SB Power (240 V): IEC 315 mA 250 V T
Power Requirements	75 VA
Voltage Requirements	120/240 V 60/50 Hz
Max. Compliance Voltage	45 V DC, Brake Output
INPUTS AND OUTPUTS	
Maximum Torque Input	TSC1: ±5 V DC TSC2: ±10 V DC
Accessory Torque/Speed Output	Torque: ±10 V DC Speed: ±10 V DC
Ctrl Out	0–3 V DC
ENVIRONMENT	
Operating Temperature	5 ºC to 40 ºC
Relative Humidity	< 80%
Temperature Coefficient	0.004% of range/°C of 5 V DC for both channels

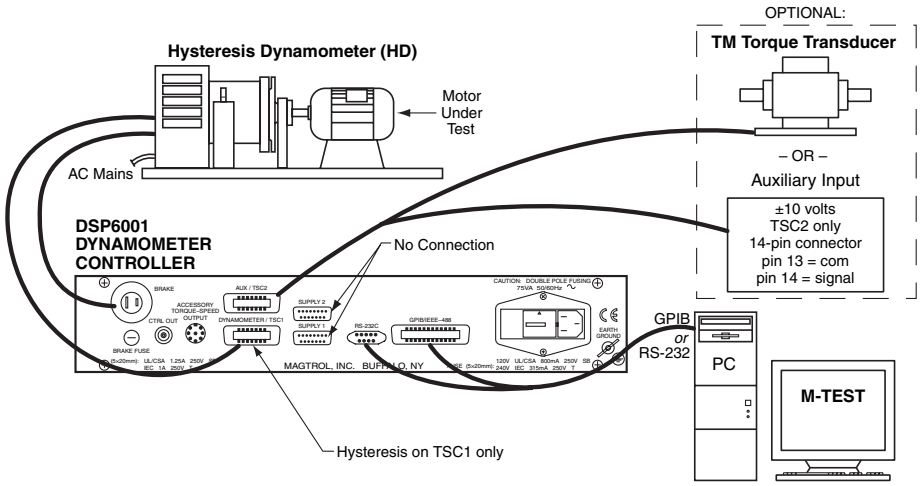
DIMENSIONS		
Width	19.0 in	483 mm
Height	3.5 in	89 mm
Depth with handles	12.4 in 13.8 in	315 mm 351 mm
Weight	16.73 lb	7.58 kg

FRONT PANEL

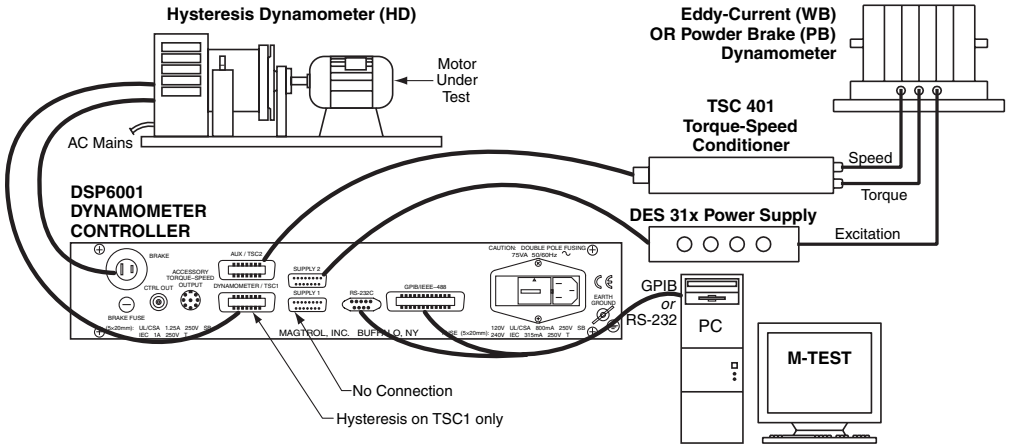


REAR PANEL

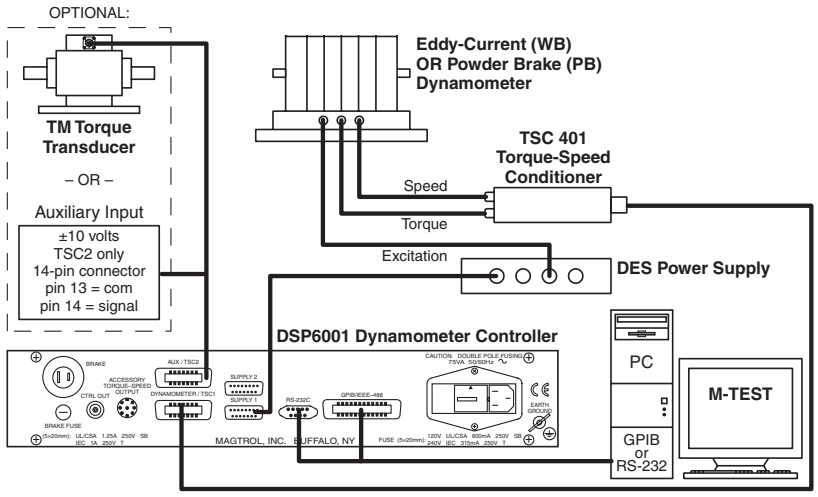




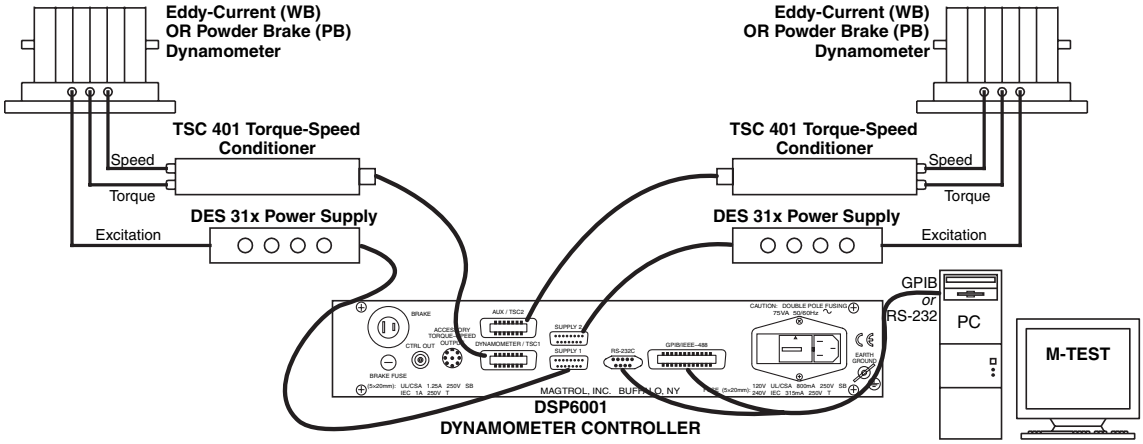
DSP6001 Connected to Hysteresis Dynamometer with Optional Auxiliary Input or In-Line Torque Transducer



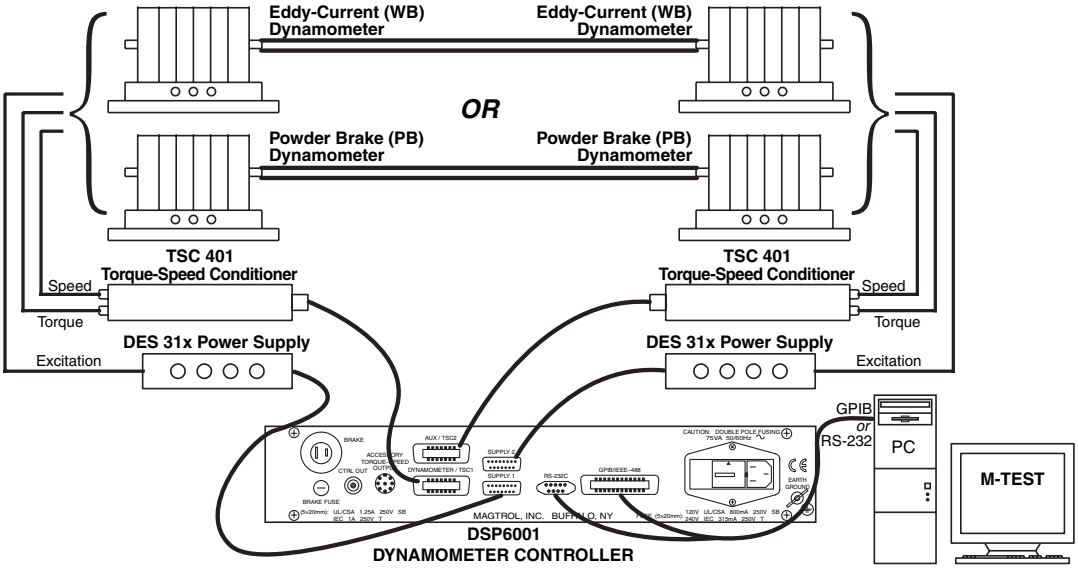
DSP6001 Connected to Hysteresis Dynamometer and Eddy-Current or Powder Brake Dynamometer



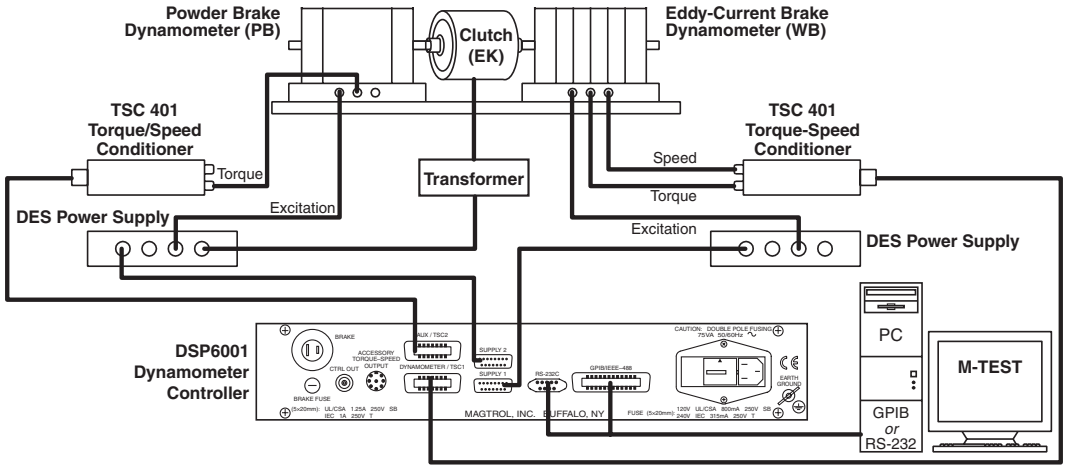
**DSP6001 Connected to Eddy-Current or Powder Brake Dynamometer (WB/PB)
with Optional Auxiliary Input or In-Line Torque Transducer**



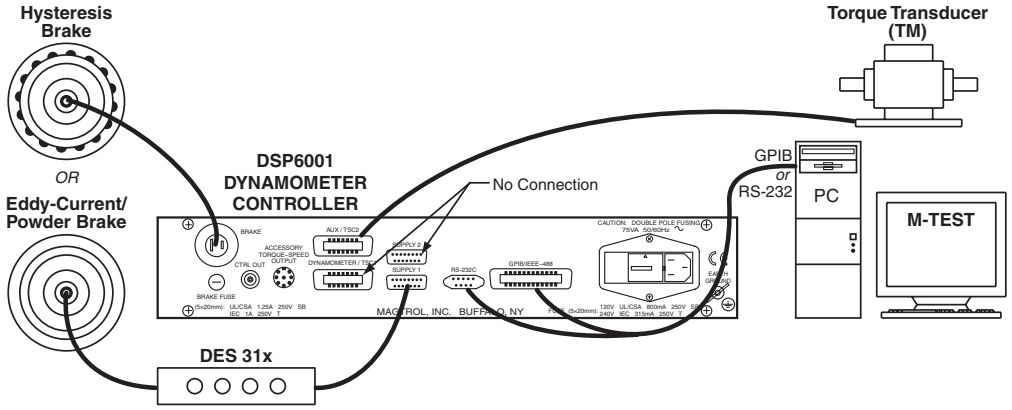
DSP6001 Connected to 2 Eddy-Current or Powder Brake Dynamometers (Independent Setup)



DSP6001 Connected to 2 Eddy-Current or 2 Powder Brake Dynamometers (Tandem Setup)



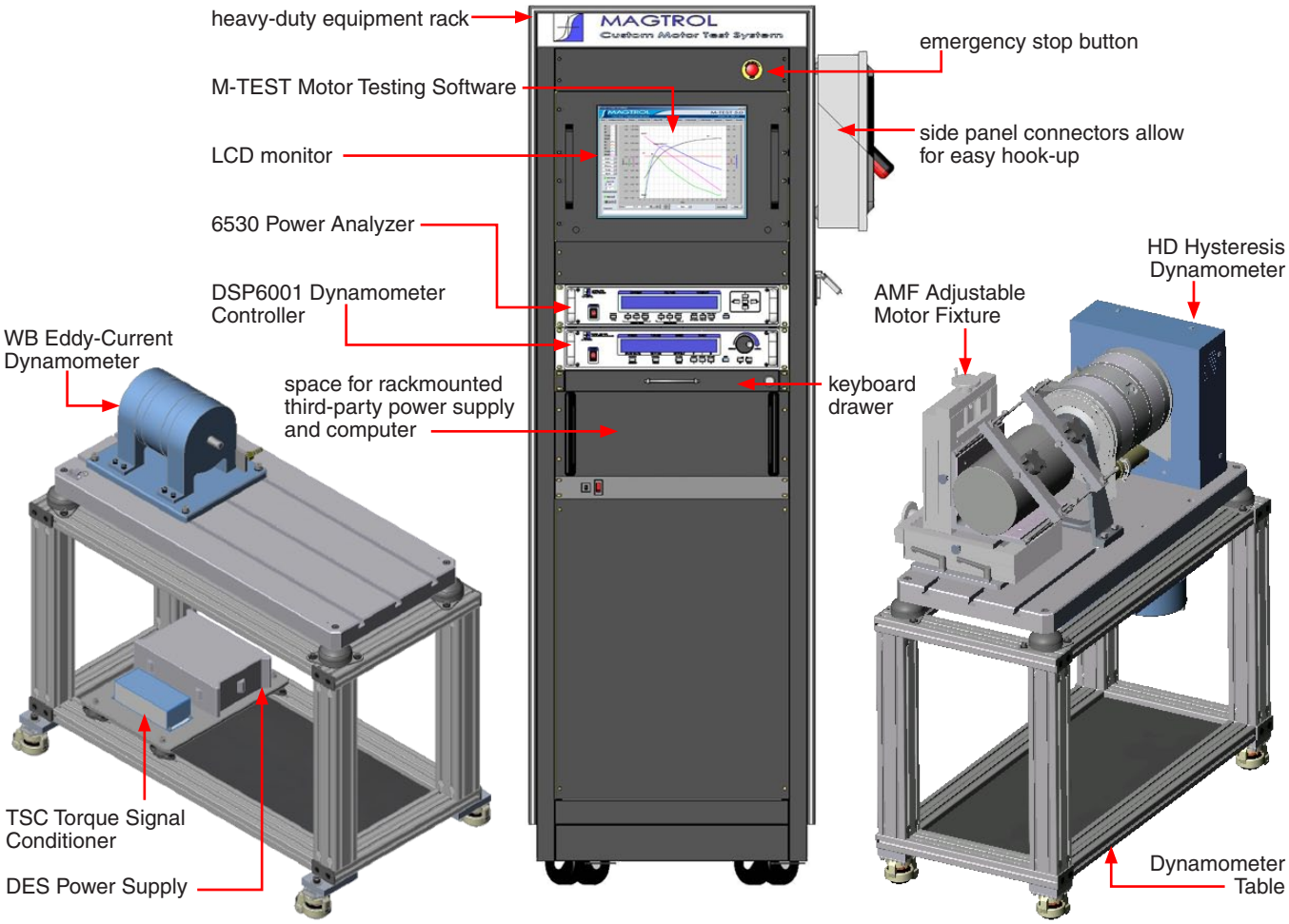
DSP6001 Connected to Eddy-Current and Powder Brake Dynamometer (Tandem Setup)



In-Line Torque Transducer Cross Loop Function

CUSTOM MOTOR TEST SYSTEM

The DSP6001 can be incorporated into a Customized Motor Test System. These PC based, turn-key systems are custom designed and built to meet specific user requirements.



ORDERING INFORMATION

DSP6001	High-Speed Programmable Dynamometer Controller 120 VAC
DSP6001A	High-Speed Programmable Dynamometer Controller 240 VAC

SYSTEM OPTIONS AND ACCESSORIES

CATEGORY	DESCRIPTION	MODEL / PART #
TESTING DEVICES	Hysteresis Dynamometers	HD series
	Eddy-Current Dynamometers	WB series
	Powder Brake Dynamometers	PB series
	In-Line Torque Transducers	TM/TMHS/TMB series
POWER ANALYZERS	High-Speed Single-Phase Power Analyzer	6510*e*
	High-Speed Three-Phase Power Analyzer	6530
SOFTWARE	M-TEST 5.0 Motor Testing Software	SW-M-TEST5.0-WE
	Temperature Testing Hardware	HW-TTEST
POWER SUPPLIES	Closed-Loop Speed Control/Power Supply	6100
	Power Supply	5200
	Current-Regulated Power Supply	5210
	Power Amplifier *(required for HD-825 Dynamometer only)*	5241
	Power Supply for WB & PB Dynamometers series 2.7 and 43	DES 310
	Power Supply for WB & PB Dynamometer series 65, 115 and 15	DES 311
MISC.	Torque/Speed Conditioner *(required for connecting WB/PB Series Dynamometers to DSP6001)*	TSC 401
CARDS & CABLES	GPIB Interface Card (PCI)	73-M023
	GPIB Cable, 1 meter	88M047
	GPIB Cable, 2 meters	88M048
	Torque Transducer Connector Cable	ER 113/01

Due to the continual development of our products, we reserve the right to modify specifications without forewarning.

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