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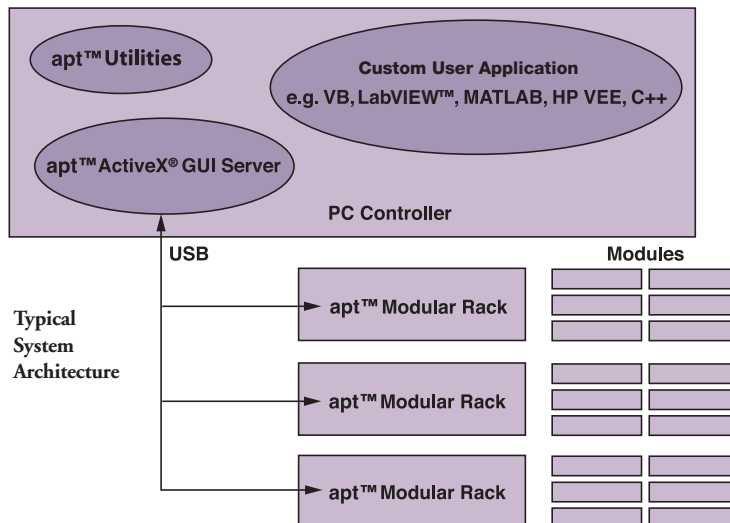
The apt™ modular rack system is a sophisticated, self-contained, expandable, motion control platform for applications with a large number of channels. This new system deploys the same advanced high-speed, digital signal processing (DSP) technology and low-noise analog circuitry pioneered in the apt™ benchtop controllers. It also provides a highly functional 12-channel platform within the footprint of a 4U (7") high, 19" wide enclosure. With a unified power supply and a single node USB communications interface, the apt™ rack system is easily incorporated into larger custom applications. Module functionality is identical to the corresponding apt™ benchtop and T-Cube™ controllers, allowing a common software solution and learning curve for both benchtop and rack-based apt™ controllers. Multiple user development environments are supported (e.g., Visual Basic, LabVIEW™, HP VEE, C++, MATLAB, and .NET).



MMR601

Building Larger Scale Systems

The two-channel apt™ stepper motor (see page 634), piezoelectric actuator driver (see pages 644 - 645), and NanoTrak™ controllers (see pages 650 - 651) all have functionally identical benchtop and rack-module equivalents. The unrestricted configuration flexibility offered by the apt™ rack-based products allows any combination of modules to be fitted for specific nanopositioning and alignment applications. For example, a system configured to operate our MAX606 (see page 569) nanopositioning stage that has six stepper motors and six piezoelectric actuators with displacement sensors, would require 12 channels of motion control. Using three stepper motor modules, each with two channels, the motor control necessary can be provided; using two piezoelectric controller modules and one NanoTrak™ controller module would power all 6 of the piezoelectric actuators while also taking advantage of the position sensors. Additionally, the NanoTrak™ module would provide the full range of features offered by a fully operational auto-alignment system. All this functionality fits into the rack chassis that measures just 4U (7") in height.

**Engineered for Ease of Use**

The rack system architecture, hardware, and software has been engineered to provide an efficient solution for complex, high-channel-count nanopositioning applications. Whether these applications are found in a modern high-volume optoelectronic component manufacturing facility or in a leading R&D facility, the MMR601 or MMR602 system is easy to implement and can be adapted to rapidly changing requirements.

Stepper Motor Driver
See Page 634Two-Channel Piezo Driver
See Pages 644 - 645Auto-Alignment Module
See Pages 650 - 651

apt™ Modular Rack System (Page 2 of 2)

The apt™ rack presents a clean, uncluttered front panel with six rear mounting bays for the plug-in modules. This arrangement greatly simplifies the cable management issues that arise as the number of channels expands.

Each module is equipped with an on-board digital signal processor (DSP), which allows processing power to be increased as modules (channels of operation) are added. Hence, the system is able to maintain maximum operating efficiency, even when fully loaded.

Furthermore, additional racks can be added to the USB bus as required, thus allowing multiple, fully automated, 6-axis positioning stages to be combined into a single unified motion control system.

The PC-based software that drives the rack system operates from the same kernel of ActiveX® multi-threaded server code used to drive the stand-alone benchtop controllers and includes the same collection of high-level user applications. All of our ActiveX® software is rigorously engineered using modern object-oriented techniques, which ensures independence of programming environment and compatibility with a large number of third-party development tools. See pages 654 - 656 for more details on the apt™ software suite.

The apt™ modular rack system provides unsurpassed ease of installation and use. In addition, it offers seamless third-party integration, scalability, flexibility, and reliability.

The MMR601 is designed to be mounted in a standard 19" instrument chassis. The MMR602 includes a cover and is intended for benchtop use.

Features

- Supports up to 12-Channels of Operation in a Single Chassis
- Three Plug-In Modules Available:
 - Dual-Channel Piezoelectric Controller with 75 V of Low-Noise Output (See Pages 644 - 645)
 - Dual-Channel Stepper Motor Controller with Peak Power of 50 W per Channel (See Page 634)
 - Dual-Channel NanoTrak™ Auto-Alignment System (See Pages 650 - 651)
- 6 Module Slots per Chassis, Access from Rear Panel
- Advanced ActiveX® PC Control Software Suite
- USB Plug-and-Play
- USB Interface Allows Multiple Systems to be Connected and Controlled via One PC



MMR601
Rear Panel
Modules Sold
Separately

Specifications

- Standard 19" Rack, 4U High
- Power Input:
 - Voltage: 85 - 264 VAC
 - Frequency: 47 - 63 Hz
 - Power: 800 W
 - Fuse: 15 A
- Dimensions (W x D x H):
19.0" x 17.6" x 7.0"
(480 mm x 448 mm x 183 mm)
- Weight:
MMR601: 24.2 lbs (11.0 kg)
MMR602: 30.8 lbs (14.0 kg)



ITEM #	\$	£	€	RMB	DESCRIPTION
MMR601	\$ 3,579.00	£ 2,576.88	€ 3,113.73	¥ 28,524.63	apt™ Modular Rack for 19" Instrument Chassis
MMR602	\$ 3,705.00	£ 2,667.60	€ 3,223.35	¥ 29,528.85	Benchtop apt™ Modular Rack with Cover