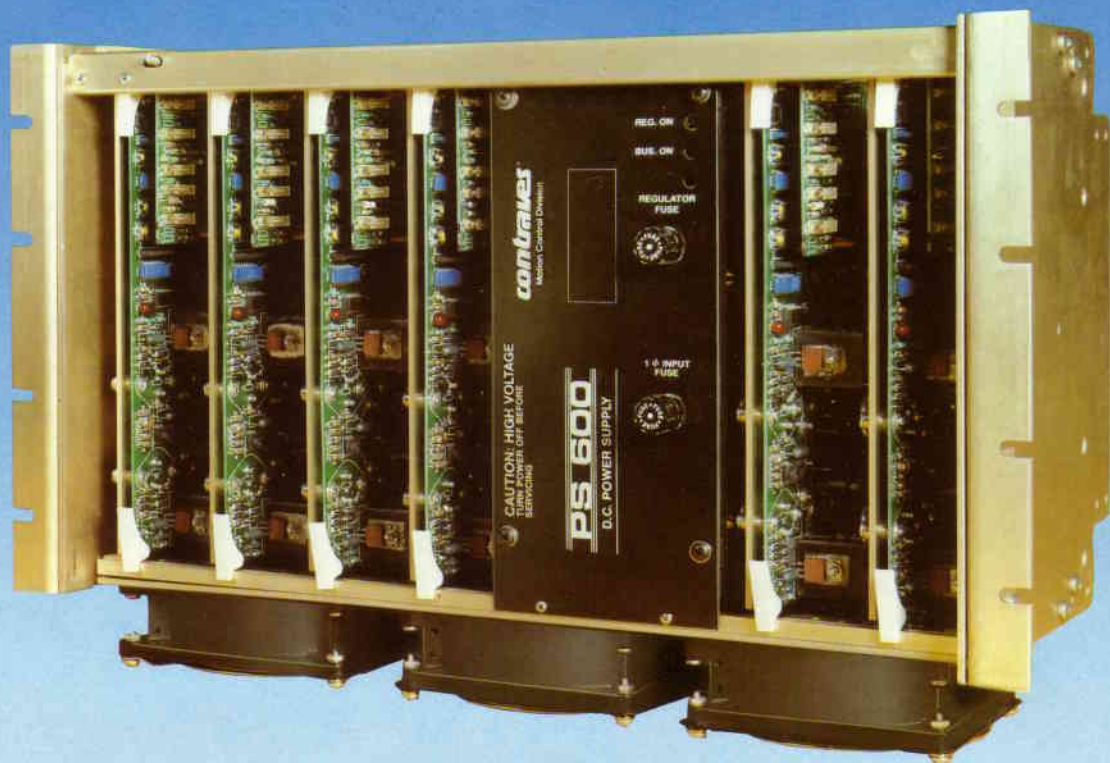


**contraves**<sup>®</sup>



## **NC600 SERIES**

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**2 to 8 Axis, 40 to 160V Bus PWM DC Servo Controllers**

## NC600 Series PWM DC Servo Controllers

The new NC600 compact, plug-in, PWM servo controllers offer reliable, efficient, precise control of permanent-magnet servo motors for such demanding applications as:

- Robot mechanism drives.
- Machine tool feed drives.
- PCB drilling and component insertion machine drives.
- Precision X-Y table drives.

The NC600 series employs our unique TRI-STATE PWM technique for smooth, efficient servo motor control. Motors needn't be derated as with SCR controllers, and in most cases there's no need to add armature inductors.

Patented short-circuit-fault circuitry, combined with other unique protection features, assures trouble-free operation. Full protection against accidents and excessive performance demands is afforded without the need for expensive additional protection devices.

The compact, low profile design of the NC600 series allows up to eight axes in a single 19 inch rack chassis. In addition, matched power supply modules with built-in bias supplies and bus regulators are integral to the chassis, so wiring and hook-up time are minimized.

The reliability of the NC600 series is assured through the use of automated assembly and test methods, combined with a 48 hour, high-temperature burn-in and the use of high grade pre-screened components.

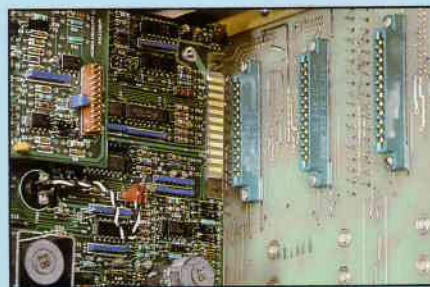
Contraves pioneered the use of the PWM technique for industrial servo motor control, and the NC600 series represents the culmination of over a decade of continued refinements in the design and manufacture of servo controllers.

## Features

- **Low cost.** Extensive use of automated production, test and burn-in facilities allows us to offer a very economical servo controller without sacrificing inherent quality.



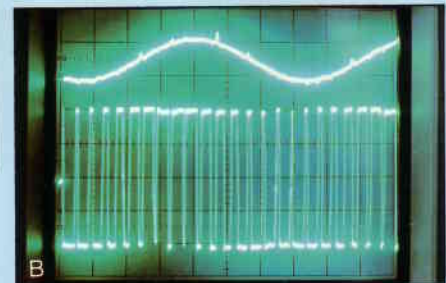
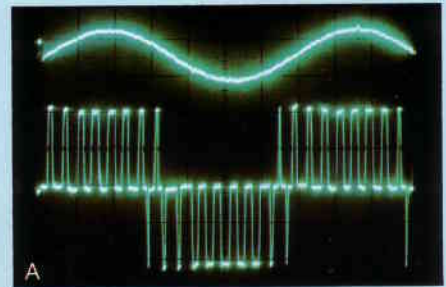
- **Small size.** The compact, yet rugged, design of the NC600 series allows more drive per unit of space than comparable designs. Eight axes take less than 1.4 cubic feet (0.04m<sup>3</sup>) of cabinet space.



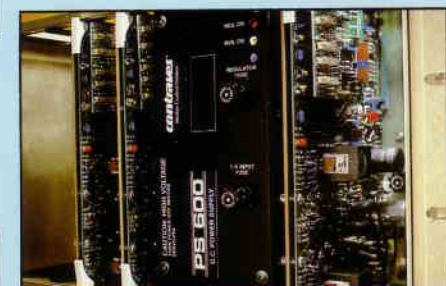
- **Plug-in.** The NC600 servo controller is a true plug-in assembly and the velocity amplifier is a plug-on assembly, so wiring errors and machine downtime are virtually eliminated.



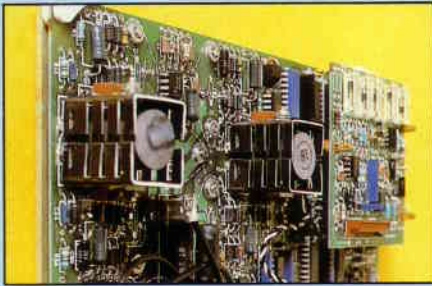
- **Full protection.** Multiple protection circuits in the NC600 series insure trouble-free operation and enhance system safety. Accidents and misuse such as short-circuits and excessive current demands are handled without damage to machine, motor or controller. An indicator visually signals a fault and other electronics alert the control when the drive shuts down under a fault condition.



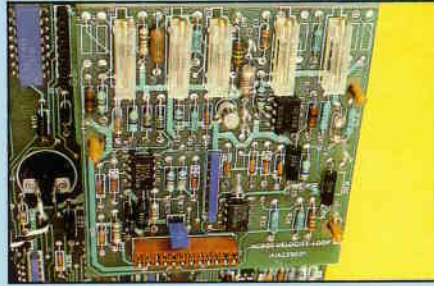
- **Tri-state modulation.** This unique switching technique reduces current ripple and RFI compared to other controller designs. Motor heating and armature inductance requirements are also minimized, while bandwidth and dynamic performance are maximized. The oscillographs show a comparison of the motor voltages for TRI-STATE PWM (A) versus standard PWM (B).



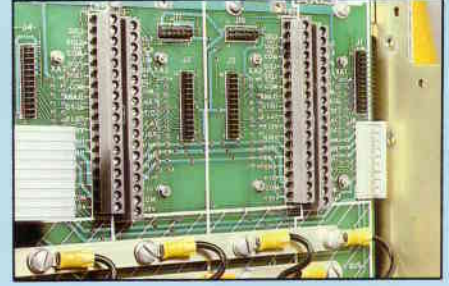
- **Wide bus range.** Bus voltages from below 40V to as high as 160V can be used, allowing proper matching to the motor. In addition, the optional velocity amplifier has an integral speed-dependent current clamp circuit insuring proper commutation.



• **Isolated output section.** Ohmic isolation of the output stage and differential signal input stages eliminate cross-talk between axes and ground loop noise disturbances. Ground and shield wiring is simplified.



• **Ease of use.** No adjustments are needed on the basic current amplifier section, and the plug-on velocity amplifier is our proven, easily set-up design with multi-turn, non-interactive adjustments.



• **Easy connections.** Connections are easily made to the NC600 series mounting chassis. Signal and power terminal blocks are well-marked, including functional descriptions, and mass termination headers are provided as an alternative signal connection means.

**Mounting chassis features:**

- Up to 6 axes plus power supply in single 19" rugged mounting frame.<sup>①</sup>
- Integral dc power supply with built-in bus regulator supplies up to 5kW continuous power.<sup>②</sup>
- Multiple, integral cooling fans for conservative operation at high ambient temperatures.<sup>③</sup>
- Easily removed securing bar, or optional metal dead-front cover (not shown), for trouble-free operation in high vibration applications.<sup>④</sup>
- Separate, clearly identified power and signal terminals for ease of hook-up.<sup>⑤</sup>
- Alternative versions for 2, 3, 4 or 8 axes are available.<sup>⑥</sup>

