

Control Techniques



Maestro
High Performance
DC PWM Servo Drives

The Maestro Series - advanced DC servo drives

The Maestro series for DC servo drives is represented by the:

- Mini Maestro Compact drive amplifier
- Midi Maestro Stand alone amplifier
- Maxi Maestro Stand alone amplifier

The Maestro PWM servo drive is manufactured using the latest surface mount technology in a cost effective, single board product for quality, reliability and repeatability.

The Maestro drive units cover the applications in the most commonly used power ranges. They give speed control for permanent magnet D.C. servomotors. The PWM frequency, of up to 20 kHz, is operated by programmable logic. As well as silent operation, the units are characterised by the accuracy of the speed and current loops. Tachogenerator or armature feedback may be selected through a switch, as can operation of acceleration/deceleration ramps. The mechanical components are made to Control Techniques designs and are completely integrated. They include the heatsink and the internal clamp

resistor. The connector at the front allows the units to be easily assembled in modular multi-axial applications.

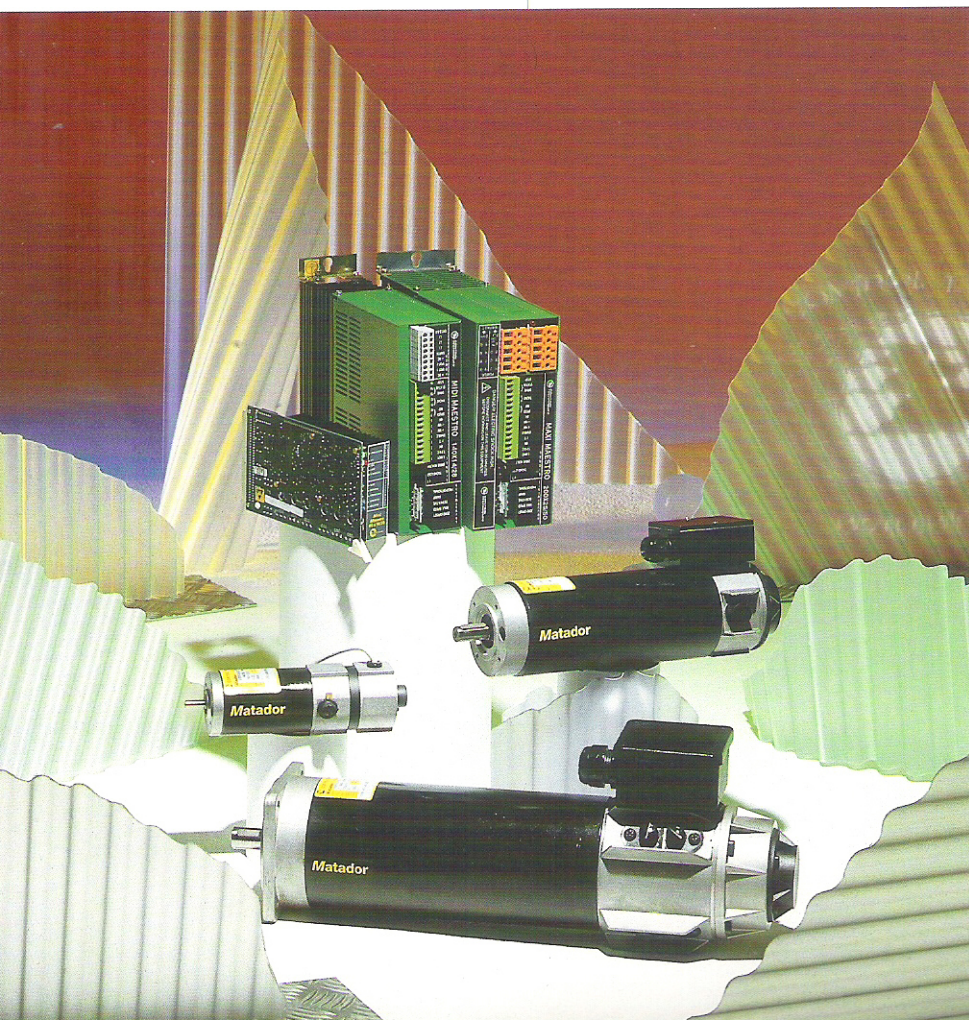
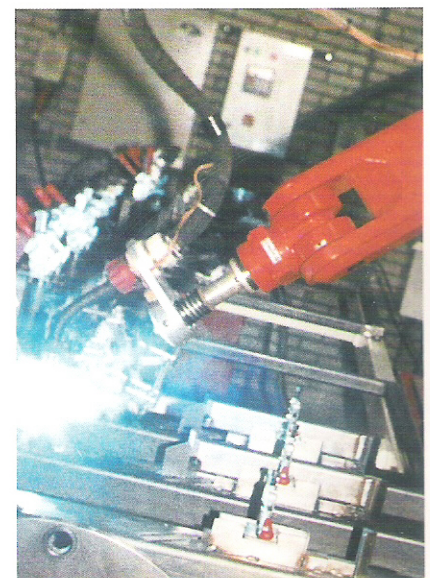
GENERAL FEATURES

Customisation module

The Maestro plug-in customisation module allows extremely accurate set up and fine tuning of the drive. Should the requirements of the drive change, then only the customisation module needs to be changed.

Applications

- Machine tool axes drives
- Copying machines
- Industrial robots
- Transfer line advancement
- XY laser table positioning
- Rotation table positioning
- Oxygen cutting machines and spot welders
- Automatic winding machines
- Packaging, printing and paint-screen machines
- Movements with frequent start/stop



A complete range

Mini Maestro

The Mini Maestro is an extremely compact drive amplifier with up to 10 axes in a single 34 europack. It features a power MOS final stage at 20kHz PWM. All that is required to power the drive is a DC voltage between 20V and 80V. The drive can also be powered from a battery or an AC rectified supply. All calibration settings are contained on the single board making replacement and recalibration easier. Two types of motherboards with terminals are available making installation and wiring simple. The range of Mini Maestro drives consists of the following four models:

- DCD 60 * 3/6
- DCD 60 * 7/14
- DCD 60 * 10/20
- DCD 60 * 14/28

Midi Maestro

The process of modern electronic packaging technology allowed us to make a compact stand alone package. This package offers an extremely high specification for single and multi-axis applications. The series of Midi Maestro drives consists of the following models:

- DCD 140 * 8/16
- DCD 140 * 14/28

Maxi Maestro

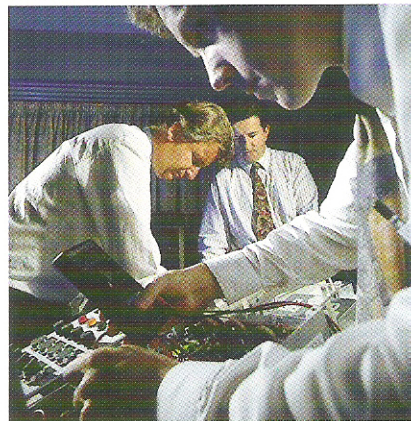
The Maxi Maestro range is a high power version of the Maestro range. The Maxi Maestro has an integrated fan. The series consists of one model:
DCD 200 * 25/50

Drive Motor Combination

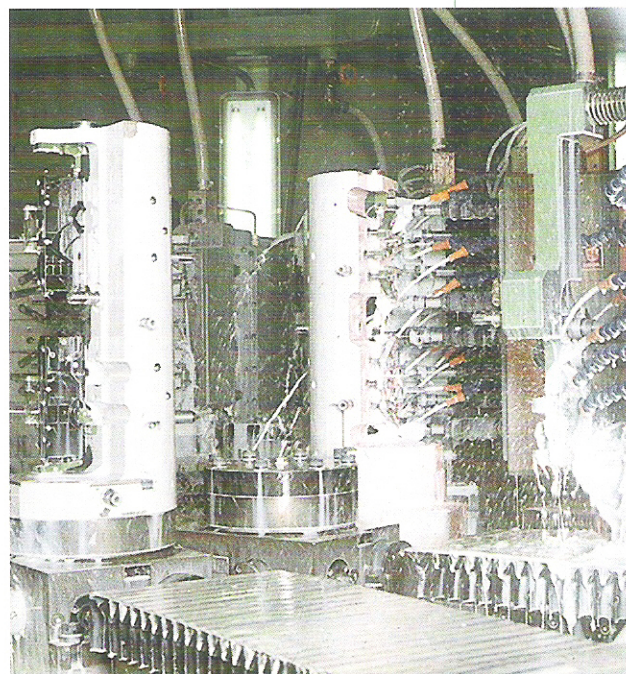
Optimum performance from a servo system is achieved by careful matching of motor and drive. The Control Techniques Matador series of motors has been designed to complement the Maestro drives, giving you unparalleled reliability and performance in package.

Worldwide Support

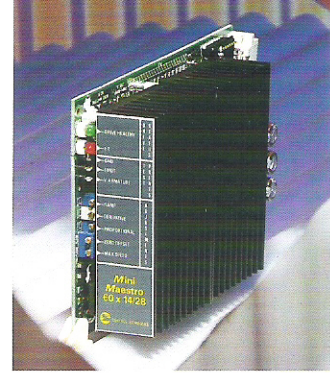
Control Techniques' products are sold worldwide via a local service centre



network. The Control Techniques Group's Centres – Automation Centres of Excellence, Drive Centres and exclusive distributors – are fully equipped to provide client with service, support and training.



Mini Maestro



Drive Ratings

Type	Nominal Current	Peak Current	Input Voltage	Output Voltage
DCD 60*3/6	3A	6A	24V	21V
DCD 60*7/14	7A	14A	to	to
DCD 60*10/20	10A	20A		
DCD 60*14/28	14A	28A	72V	69V

Power stage features

Supply voltage:

from battery: 24 to 72 volts
 from rectifier, with ripple 2Vpp:
 20V to 80V

Max. voltage at motor:

Rectified supply voltage minus 3V.

Mini Maestros must be supplied through an isolated transformer. Such transformers, rectifiers and capacitors can be ordered from your Mini Maestro supplier.

PWM working frequency: 20kHz

Minimum motor inductance without external choke: 1mH

Braking resistor is not required, when amplifier is supplied by power supply.

Braking energy is recovered on DC-bus capacitors.

General

Analogue speed reference input:

±10V (33 kOhm input impedance)

Analogue current reference input:

±10V (22 kOhm input impedance)

Error amplifier temperature drift:

±25µV/°C

Min. tach signal at maximum speed:

5V

Ambient working temperature:

-10 to +45°C (DCD 60*14/28 requires forced ventilation)

Adjustments:

Full scale speed

Ramp gradient

Current limit

Dynamic gain

Derivative action

Zero offset

Diagnostics

Red LED indicator when I²t is active

Green LED indicator for drive healthy

Control output for drive status

Analogue output for motor-current monitoring

Analogue output for requested current (TPRC) monitoring

Options selectable through links

Armature feedback

Tachogenerator feedback

Protection

Undervoltage: 20Vdc

Oversvoltage: 80Vdc

Overtemperature: 100°C

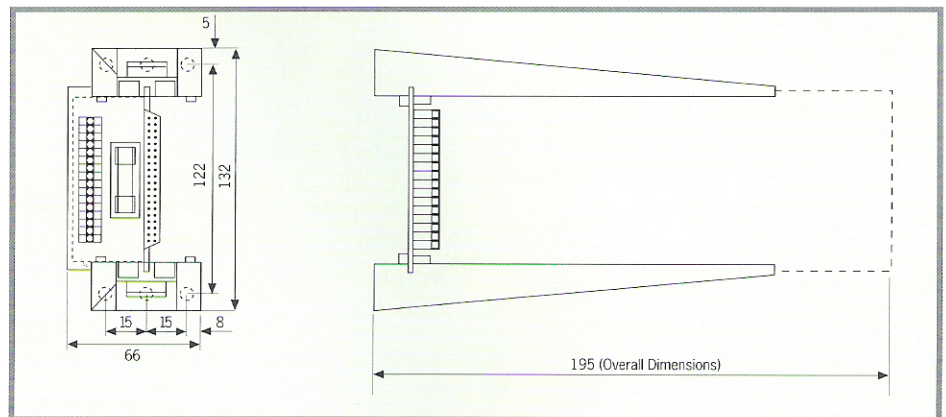
Short-circuit between terminals

Short-circuit on the motor

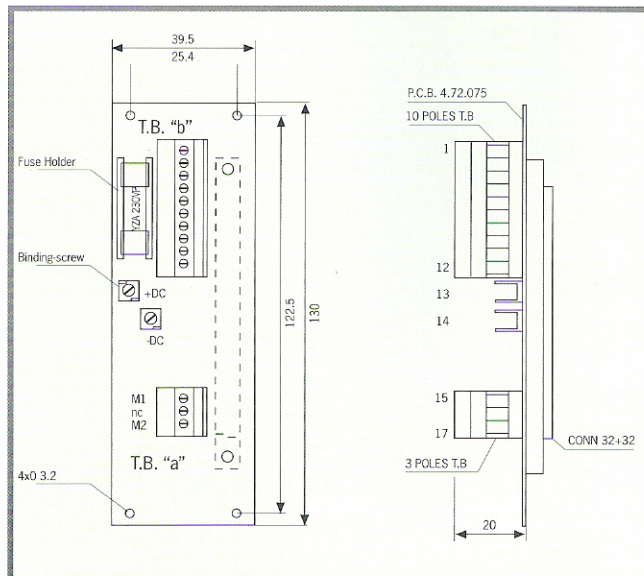
Dimensions

Standard Eurocard 100mm x 160mm

Dimensions Eurocard – 2MH



Dimensions Motherboard – 3MB



Midi Maestro

Drive Ratings

Type	Nominal Current	Peak Current for 2 seconds
DCD140*8/16	8A	16A
DCD140*14/2	14A	28A

Power stage features

Supply voltage from main power distribution isolated through a line transformer with a 3 phase 105Vrms output.

Max voltage at the motor:

Rectified supply voltage minus 8V

PWM working frequency:

18kHz

Internal braking unit:

Resistance 10 Ohm, 200 Watts

Minimum motor inductance without external choke:

2.0mH

General

Analogue reference input:

±10V (10 kOhm input impedance)

Error amplifier temperature drift:

1.3µV/°C

Min. tach signal at maximum speed:

5V

Working temperature:

-10 to +50°C

Adjustments:

(all on the customization board)

Full scale speed

Current limit

Ramp gradient

Dynamic gain

Derivative action

Ref. speed offset compensation

Diagnostics

Red LED indicator when I²t is active

Red LED indicator for tach loss

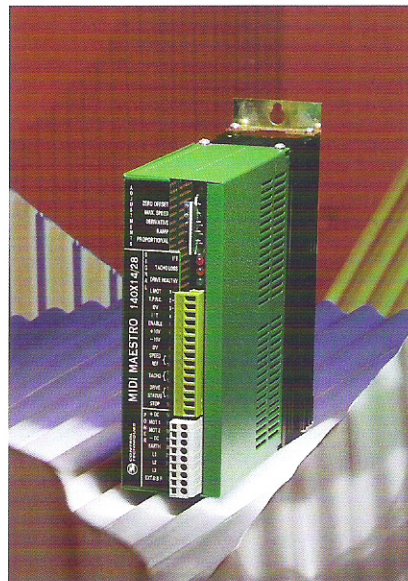
Green LED indicator for drive healthy

Control output for drive status

Logic output for I²t limit monitoring

Analogue output for motor current monitoring

Analogue output for requested current (TPRC) monitoring



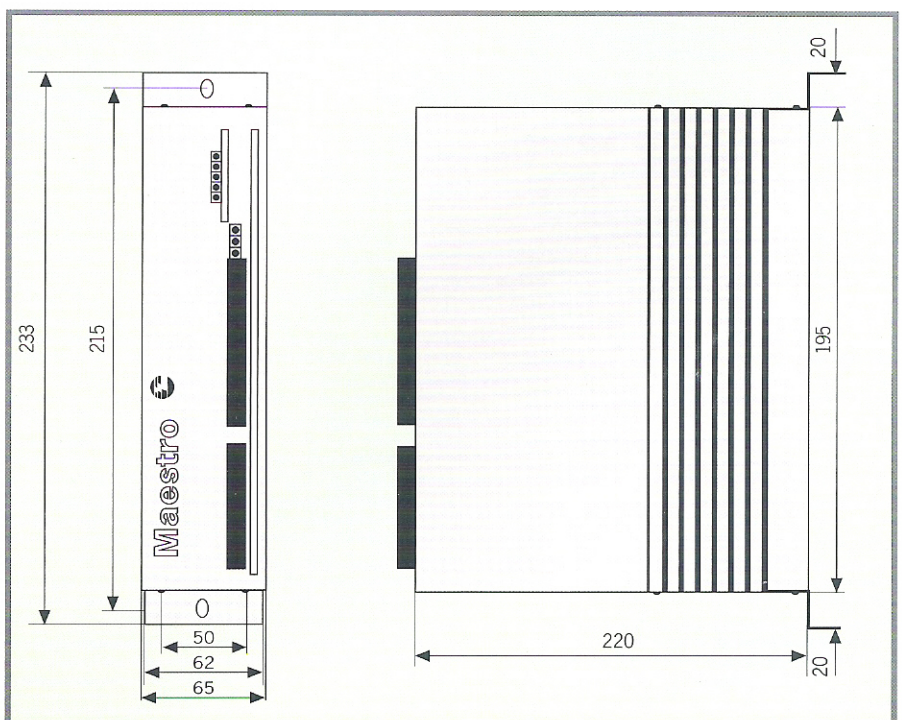
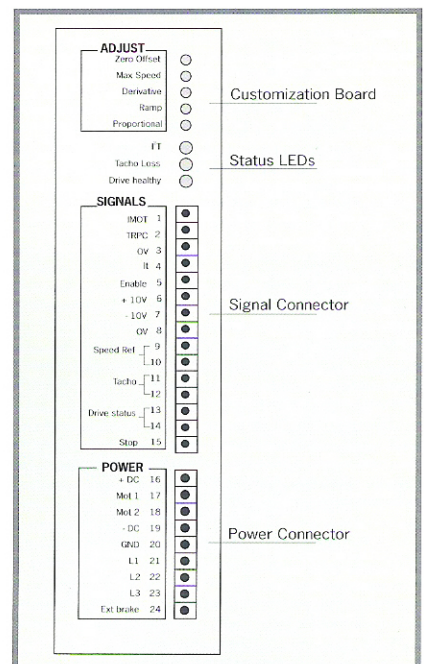
Options selectable through switches

Armature feedback

Tachogenerator feedback

Acceleration/deceleration ramp enable

Tacho-loss protection enable



Maxi Maestro

Drive Ratings

Type	Normal Current	Peak Current for 2 seconds
DCD 200*25/50	25A	50A

Power stage features

Supply voltage from main power distribution line, through an isolated transformer with a 3 phase 150 Vrms output

Max voltage at the motor:

Rectified supply voltage minus 8V

PWM working frequency:

18kHz

Minimum motor inductance without

external choke:

3.0mH

General

Analogue speed reference input:

±10V (10 kOhm input impedance)

Error amplifier temperature drift:

1.3µV/°C

Min. tach signal at maximum speed:

5V

Working temperature:

-10 to +50°C

Adjustments:

(all on the customization board)

Full scale speed

Current limit

Dynamic gain

Derivative action

Ref. speed offset compensation

Ramp gradient

Diagnostics

Red LED indicator when I²t is active

Red LED indicator for tach loss

Green LED indicator for drive healthy

Control output for drive status

Logic output for I²t limit monitoring

Analogue output for motor current monitoring

Analogue output for requested current (TPRC) monitoring

Options selectable through switches

Armature feedback

Tachogenerator feedback

Acceleration/deceleration ramp enable

Tacho-loss protection enable

Protection

Under-voltage: 100 Vdc

Over-voltage: 275 Vdc

Overtemperature: 90°C

Short circuit between motor terminals

Short circuit between motor and power source

Short circuit between motor and ground

Short circuit in the final stage

Abnormal internal working voltage

Tachogenerator feedback loss

