



## GT-200 Series Motion Controller

Googol Technology (HK) Limited

The GT-200 series motion controller is a universal controller developed by Googol Technology. The series has two product versions, the GT-200-SV and GT-200-SG, widely used in applications ranging from simple point-to-point motion control equipment to highly complicated profile motion control equipment, such as measuring machines, engraving machines, NC lathes, machining centers and robots.



### Features

- Adopt high-performance DSP and FPGA technology
- Each card can control 2 servo/step motors
- Programmable sampling rate. The minimum interpolation period of four axes is 200us. The minimum control period of single-axis point-to-point motion is 25us
- Modes of motion: point-to-point motion, linear interpolation, circular interpolation, velocity control, interface to manual pulse generator, and electronic gearing
- Programmable trapezoid curve planning and S-curve planning and update parameters on-the-fly
- All registers for computational parameters and trajectory planning parameters are 32 bits
- Hardware capture of home switch and index signal of encoder
- Set following-error limit, acceleration limit and output limit, to ensure safe and reliable control
- PID (Proportional-Integral-Derivative) digital filter with velocity and acceleration feed-forward, and with integral limit and bias compensation (for SV card).
- Network communication port (Ethernet, Profibus-DP, RS232, RS232/485) (Optional).
- User-defined coordinate system for ease of programming
- Coordinated motion of 2 axes, linear interpolation, and circular interpolation
- Continuous interpolation function
- On-board memory buffer to improve communication efficiency
- Programmable event interrupt: external input interrupt, event interrupt and time interrupt
- On-board EEPROM to update firmware and parameters
- Drivers and DLL for Windows98/2000/NT, C and C++ function library

## Specification

### Axis Channels

- 2 channels of 16-bit analog voltage output signal or pulse output signal with a frequency up to 1MHz
- 4 channels of quadrature incremental encoder input  
2 channels used for feedback signal input of each axis, 2 channels are used for the auxiliary encoder input
- Encoder sampling rate up to 8MHz
- Flexible combination of analog voltage output and pulse output mode

### Analog Input (Optional)

- 8 channels of independent 12-bit $\pm$ 10V analog input

### Uncommitted Digital Input/Output

- 16 channels of uncommitted opto-isolated digital input
- 16 channels of uncommitted opto-isolated digital output

### Dedicated Digital Input/Output

- Dedicated opto-isolated inputs for each axis:  
2 channels for limit switch signal, 1 channel for home signal, and 1 channel for drive alarm signal input
- Dedicated opto-isolated outputs for each axis:  
1 channel for drive enable signal and 1 channel for drive alarm signal reset

### Position Capture

1 channel of probe input for capturing the positions of 2 axes simultaneously, 1 channel of home capture signal and 1 channel Index capture signal for each axis

### Bus Type

- Standard ISA/PC104 bus.
- Standard PCI bus.
- Stand-alone through standard network interface (Optional)

### System Software

- Demo software in Windows environment.
- Windows 98/2000/NT equipment drivers.
- C/C++ function library and demo software in DOS.

### Power Consumption

- +5V, Icc = 2A, power supplied from PC.
- $\pm$ 12V, Icc = 60mA, power supplied from PC.
- +24V or +12V, Icc = 2A, external power provided by user.

### Environment

- Operating temperature: 0 – 60°C
- Relative humidity: 5% - 90%, non-condensing

### Mechanical Dimension

- 122mm x 185mm

### Basic Accessories

- ACC1 interconnect board & ACC4 60-pin flat cable
- ACC3 62-pin shielded cable (x2)
- ACC2 terminal board

## Ordering Guide

| Model     | Number of Control Axes | Motor Type       | Control Mode          | PC Bus Type      |
|-----------|------------------------|------------------|-----------------------|------------------|
| GT-200-SV | 2                      | Servo/Step Motor | Closed loop/Open loop | ISA/PC104 or PCI |
| GT-200-SG | 2                      | Step Motor       | Open loop             | ISA/PC104 or PCI |