



**Genesys Logic, Inc.**

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# **GL123**

**High Speed USB 2.0  
2-in-1 Scanner Controller  
with Sheet-fed ADF & Bus Power**

**Product Overview**



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### GENERAL DESCRIPTION

Genesys Logic's single-chip GL123 (GeneScan™ series) is a high speed, high performance and rich scalability controller for scanner with fast ADF function and bus power. It successfully integrates scanner function ASIC and USB 2.0 interface controller into one single-chip. With its high performance design architecture, GL123 is not only ready for supporting CIS or CCD image sensors (600, 1200, 2400, 3200, 3600, 4800 and 9600dpi resolution) that are used in sheet-fed, flatbed or transparency scanners, but is able to co-work with unipolar or bipolar stepping motors. Advanced features of GL123 include five motor acceleration/ deceleration curve tables for high speed motor moving.

## FEATURES

- Highly integrated scanner controller chip (2-in-1; Scanner Controller and USB 2.0 Interface)
- USB 2.0 High Speed (480Mbit) compliant
- Designed for sheetfed, flatbed and transparency scanners
- Designed for self-power and bus-power application
- Embedded RISC CPU for USB protocol handling
- Support single AFE for dual head scanning
- 12MHz low frequency clock input for better EMI
- Adjustable working clock of scanner controller for different usage (12M, 24M, 30M, 40M, 48M, 60MHz)
- Supports linear or stagger CCD, such as NEC, Toshiba or Sony CCD
- Available sensor types: 600, 1200, 2400, 3200, 3600, 4800 and 9600 dpi color CIS or CCD
- Multi-TG control for CCD (separately controls the R/G/B exposure time)
- Shutter-control for CCD (separately controls the R/G/B exposure time)
- Supports two scanning types: pixel-by-pixel (pixel rate), line-by-line (line rate)
- Support 48-bits color, 16-bits gray and 1-bit line-art
- “True gray” with R, G and B weightings
- 16 bits white/dark shading and 16 bits Gamma correction
- Supports RS232 interface for special applications
- Supports EEPROM (93C46) interface for special applications
- Supports ADF (Auto-Document-Feeder) function with document, ADF and cover sensors
- Supports auto-ADF with automatically feeding in, automatically scanning and automatically feeding out
- Lines packing for stagger CCD or R/G/B line differences
- Fine CDS sampling adjustment to avoid the digital noise influence (8.33ns adjustment)
- Digital average and hardware deletion for various resolutions
- Hardware deletion for various resolutions (from 9600~1dpi with 1dpi decrement)
- Supports 1M\*16, 4M\*16, 8M\*16, 16M\*16 and 32M\*16 SDRAM
- Supports up to 1 G bits size SDRAM (implements two SDRAM)
- Supports 5 acceleration/deceleration motor tables for high speed motor moving and wall hitting protection
- Supports controllable bipolar motor in full, half, quarter and eighth steps moving
- Supports controllable unipolar motor in full and half steps moving
- Supports V-reference automatic control for motor driver Ics
- Build-in PWM control phase for unipolar motors
- Programmable dummy lines to resolve start/stop (discontinuous) problem
- Watchdog protection for lamp, motor and ASIC
- Lamp time-out (sleeping) control
- Supports GPIO1~12, GPIO14~20 pins and 5 GPO pins for I/O control
- Supports PWM outputs for flatbed/transparency lamp control with programmable duties and frequencies
- Supports LED blinking
- Supports back-scanning
- Supports multi-film scanning

## BLOCK DIAGRAM

