

# Flash Products

## Embedded USB Flash Drive

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### Embedded USB Flash Based Drive

SMART Modular Technologies' Embedded USB (EUSB) is a flash based drive designed to be used as a main boot and storage device for embedded systems. The EUSB's small form-factor, lower power consumption and fast access times offer distinct technical advantages over more traditional mass storage devices.

Available in sizes up to 8GB, SMART's industrial grade EUSB drives are offered in both 5V and 3.3V versions. With random access times that are typically less than 1ms for the drive, the EUSB is capable of sustained read speeds up to 36MB/s and write speeds up to 23MB/s.

### EUSB Specifications:

- Supports bootability with most standard BIOSs
- 36MB/s Read Speed and 23MB/s Write Speed (based on two chip 2GB drive)
- Industrial Grade range 0°C to 70°C
- Industrial Temp range -40°C to 85°C
- Low power dissipation: less than .45W active (.68W for 5V version) and less than 1mW standby
- 2 Signal Data path via USB interface to the Host
- USB 2.0 Specification Hi-Speed compatible
- Capacity range 256MB to 8GB
- Solid State Drive
- Small footprint header, industry standard header, or low profile stacking header tailored for embedded systems design
- Optional HW Reset and Write Protect support
- Firmware upgradeable via USB bus



## Ordering Information

### SMART Legacy Standard Connector (.385in high)

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed (MB/s)	Write Speed (MB/s)	Random Access (ms)
SG9ED52L256G1	5	Legacy	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED52L512G2	5	Legacy	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED52L1GG4	5	Legacy	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED52L2GGD	5	Legacy	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED52L2GG9	5	Legacy	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED52L4GGC	5	Legacy	4GB	16Gb, 4K	32MB/s	17MB/s	0.6ms
SG9ED52L4GGA	5	Legacy	4GB	16Gb	32MB/s	24MB/s	0.6ms
SG9ED52L8GGB	5	Legacy	8GB	32Gb, 4K	35MB/s	15MB/s	0.6ms

### SMART Legacy Low Profile Connector (.290in high)

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed	Write Speed	Random Access
SG9ED52U256G1	5	Legacy Low Profile	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED52U512G2	5	Legacy Low Profile	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED52U1GG4	5	Legacy Low Profile	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED52U2GGD	5	Legacy Low Profile	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED52U2GG9	5	Legacy Low Profile	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED52U4GGA	5	Legacy Low Profile	4GB	16Gb	32MB/s	17MB/s	0.6ms
SG9ED52U4GGC	5	Legacy Low Profile	4GB	16Gb, 4K	32MB/s	24MB/s	0.6ms
SG9ED52U8GGB	5	Legacy Low Profile	8GB	32Gb, 4K	35MB/s	15MB/s	0.6ms

### SMART Legacy 2mm Connector (.144in high)

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed	Write Speed	Random Access
SG9ED52M256G1	5	Legacy 2mm	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED52M512G2	5	Legacy 2mm	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED52M1GG4	5	Legacy 2mm	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED52M2GGD	5	Legacy 2mm	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED52M2GG9	5	Legacy 2mm	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED52M4GGC	5	Legacy 2mm	4GB	16Gb, 4K	32MB/s	17MB/s	0.6ms
SG9ED52M4GGA	5	Legacy 2mm	4GB	16Gb	32MB/s	24MB/s	0.6ms
SG9ED52M8GGB	5	Legacy 2mm	8GB	32Gb, 4K	35MB/s	15MB/s	0.6ms

### SMART Stacking Top 9-Pin Locking Connector

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed	Write Speed	Random Access
SG9ED32T256G1	3.3	Stacking-Top	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED32T512G2	3.3	Stacking-Top	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED32T1GG4	3.3	Stacking-Top	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED32T2GGD	3.3	Stacking-Top	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED32T2GG9	3.3	Stacking-Top	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED32T4GGC	3.3	Stacking-Top	4GB	16Gb, 4K	32MB/s	17MB/s	0.6ms
SG9ED32T4GGA	3.3	Stacking-Top	4GB	16Gb	32MB/s	24MB/s	0.6ms
SG9ED32T8GGB	3.3	Stacking-Top	8GB	32Gb, 4K	35MB/s	15MB/s	0.6ms

### SMART Stacking Bottom 9-pin Locking Connector

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed	Write Speed	Random Access
SG9ED32B256G1	3.3	Stacking-Bot	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED32B512G2	3.3	Stacking-Bot	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED32B1GG4	3.3	Stacking-Bot	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED32B2GGD	3.3	Stacking-Bot	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED32B2GG9	3.3	Stacking-Bot	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED32B4GGC	3.3	Stacking-Bot	4GB	16Gb, 4K	32MB/s	17MB/s	0.6ms
SG9ED32B4GGA	3.3	Stacking-Bot	4GB	16Gb	32MB/s	24MB/s	0.6ms
SG9ED32B8GGB	3.3	Stacking-Bot	8GB	32Gb, 4K	33MB/s	15MB/s	0.6ms

### SMART Short eUSB With Standoff Connector

Part Number	Supply Voltage	Connector	Physical Capacity	Chip Density	Read Speed	Write Speed	Random Access
SG9ED31E256G1	3.3	Standoff eUSB	256MB	1Gb	31MB/s	12MB/s	0.4ms
SG9ED31E512G4	3.3	Standoff eUSB	512MB	4Gb	18MB/s	10MB/s	0.6ms
SG9ED32E512G2	3.3	Standoff eUSB	512MB	2Gb	31MB/s	17MB/s	0.4ms
SG9ED32E1GG4	3.3	Standoff eUSB	1GB	4Gb	30MB/s	17MB/s	0.5ms
SG9ED32E2GGD	3.3	Standoff eUSB	2GB	8Gb, 4K	33MB/s	17MB/s	0.5ms
SG9ED32E2GG9	3.3	Standoff eUSB	2GB	8Gb	33MB/s	17MB/s	0.6ms
SG9ED32E4GGC	3.3	Standoff eUSB	4GB	16Gb, 4K	35MB/s	15MB/s	0.6ms
SG9ED32E4GGA	3.3	Standoff eUSB	4GB	16Gb	32MB/s	17MB/s	0.6ms
SG9ED32E8GGB	3.3	Standoff eUSB	8GB	32Gb	32MB/s	24MB/s	0.6ms

# EUSB Diagram

