

# TDC209

## Industrial-grade microSD card

Designed for high-definition, multi-channel video surveillance applications, the BIWIN TDC209 industrial-grade microSD card combines high reliability with intelligent storage technology to deliver a professional-grade data storage solution. Featuring core technologies such as high-temperature data retention, intelligent low power consumption, and voltage protection, the BIWIN TDC209 supports stable operation in temperatures ranging from -25°C to +85°C for data consistency and storage stability even under demanding outdoor conditions.

With advanced multi-write optimization technology, the BIWIN TDC209 maintains a stable write speed exceeding 10 MB/s, meeting the demands of high intensity write operations and challenging task processing. The BIWIN TDC209 resists water, dust, shocks, and abrasion, and is also protected against X-ray and magnetic interference, making it ideal for high-risk environments such as automotive, industrial control, and security monitoring.

Equipped with S.M.A.R.T. health monitoring and firmware-based power loss protection, the BIWIN TDC209 continuously tracks the card's health state and provides early warnings of potential risks, further enhancing system reliability and maintenance efficiency.



### Key Features

#### Multi-Channel Continuous Writing

The BIWIN TDC209 features advanced intelligent data stream management which separates video stream data and system data into different partitions. This effectively reduces system load during Garbage Collection (GC) when the card is full. The technology ensures stable and more reliable continuous write performance even under high-load conditions. With eight channels for continuous writing, the write speed remains consistent at more than 10 MB/s, ensuring a smooth data flow for applications such as video surveillance and high-definition video recording.

#### Low Power Consumption Technology

The BIWIN TDC209 integrates advanced intelligent low power management technology, automatically detecting periods of inactivity and transitioning from active to idle mode. This significantly reduces power consumption by transitioning from higher active power levels (measured in milliamps, mA) to lower idle power levels (measured in microamps,  $\mu$ A), while ensuring a quick wake-up response in milliseconds (ms). The technology significantly extends battery life and makes the TDC209 very suitable for energy-sensitive applications such as exploration, body cameras, and portable surveillance.

#### Precise Voltage Monitoring

The BIWIN TDC209 uses the VDT (Voltage Detection Technology), providing real-time detection and response to power voltage fluctuations or anomalies. This feature effectively mitigates the risk of data corruption caused by voltage irregularities, ensuring the integrity and consistency of critical data throughout system operation.

#### Intelligent Health Monitoring

The BIWIN TDC209 integrates advanced S.M.A.R.T. monitoring to track the card's health in real-time. Timely alerts regarding potential risks and the card's remaining lifespan help systems act proactively, minimizing downtime and protecting data integrity. This feature ensures optimal performance and reliability for applications requiring high system dependability.

### Technologies

Intelligent Data Routing

Intelligent Low-Power Management

Voltage-Abnormality Protection

Intelligent Thermal Throttling

Power Loss Protection

S.M.A.R.T.

### Applications



Dash Cam



Car DVR



Police Body Camera



Panoramic Camera



Smart Healthcare



Industrial Tablet



Industrial Drone

<b>Model Name</b>	TDC209
<b>Interface</b>	UHS-I
<b>Flash Type</b>	3D TLC
<b>Firmware</b>	TLC Direct Write
<b>Capacity</b>	128 GB / 256 GB / 512 GB
<b>Sequential Read (Up to)</b>	158 MB/s
<b>Sequential Write (Up to)</b>	123 MB/s
<b>Random Read 4K (Up to)</b>	8.9 MB/s
<b>Random Write 4K (Up to)</b>	3.4 MB/s
<b>Operation Current (Max.)</b>	183 mA
<b>Operation Current (Average)</b>	169 mA
<b>Standby Current (Max.)</b>	159 $\mu$ A
<b>Dimensions</b>	11.00 x 15.00 x 0.70mm
<b>Operating Temperature</b>	-25°C to +85°C
<b>Storage Temperature</b>	-40°C to +85°C
<b>Endurance</b>	3000 P/E cycles
<b>MTBF</b>	>3,000,000 hours
<b>Certifications</b>	RoHS, HF, REACH, WEEE, CE, FCC, RCM, UKCA, VCCI
<b>TBW (Up to)</b>	512 TBW
<b>Warranty</b>	3-Year Limited

## Order Information

Capacity	Part Number	Power Loss Protection
128 GB	TDUDM12811S2T	Firmware-Based
256 GB	TDUDM25611S2T	Firmware-Based
512 GB	TDUDM51211S2T	Firmware-Based

1. Tested by BIWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product lifecycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on the operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabyte per second (GB/s) = one billion bytes per second.
6. MTBF = Mean Time Between Failures based on internal testing using the Telcordia stress testing standard.
7. Please visit [www.biwin technology.com](http://www.biwin technology.com) for warranty details in your region.
8. For more information, please contact [sales@biwintech.com](mailto:sales@biwintech.com).

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