

Slide-in compact re- placement drives

Aggregate data sheet

Version: **1.01 (November 2020)**

Order no.: **5MMSSD.xxxx-0x**

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1 General information

5MMSSD.xxxx-0x slide-in compact solid-state drives (SSD) are based on multi-level cell (MLC) technology and compatible with SATA 3.1. They can be used as replacement parts or accessories.

- 60, 128, 256, 512 and 1024 GB solid-state drive
- MLC flash memory
- S.M.A.R.T. support
- Slide-in compact
- SATA 3.1 compatible

This data sheet contains descriptions of multiple revisions. See the adhesive device label for the revision. The following table shows the respective revisions of the drives.

Order number	Replacement part for	Revision	Page
5MMSSD.0060-01	5AC901.CSSD-03	F0	"Technical data for Rev. F0 and later" on page 6
		Up to E0	"Technical data up to Rev. E0" on page 8
5MMSSD.0128-01	5AC901.CSSD-04	F0	"Technical data for Rev. F0 and later" on page 10
		Up to E0	"Technical data up to Rev. E0" on page 12
5MMSSD.0256-00	5AC901.CSSD-05	E0	"Technical data for Rev. E0 and later" on page 14
		Up to D0	"Technical data up to Rev. D0" on page 16
5MMSSD.0512-00	5AC901.CSSD-06	D0	"Technical data for Rev. D0 and later" on page 18
		Up to C0	"Technical data up to Rev. C0" on page 20
5MMSSD.1024-00	5AC901.CSSD-07	D0	"Technical data for Rev. D0 and later" on page 22

2 Information about this document

This document is not intended for end customers! The safety guidelines required for end customers must be incorporated into the operating instructions for end customers in the respective national language by the machine manufacturer or system provider.

2.1 Organization of notices

Safety notices

Contain **only** information that warns of dangerous functions or situations.

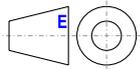
Signal word	Description
Danger!	Failure to observe these safety guidelines and notices will result in death, severe injury or substantial damage to property.
Warning!	Failure to observe these safety guidelines and notices can result in death, severe injury or substantial damage to property.
Caution!	Failure to observe these safety guidelines and notices can result in minor injury or damage to property.
Notice!	Failure to observe these safety guidelines and notices can result in damage to property.

General notices

Contain **useful** information for users and instructions for avoiding malfunctions.

Signal word	Description
Information:	Useful information, application tips and instructions for avoiding malfunctions.

2.2 Guidelines



European dimension standards apply to all dimension diagrams.

All dimensions in millimeters.

Unless otherwise specified, the following general tolerances apply:

Nominal dimension range	General tolerance per DIN ISO 2768 medium
Up to 6 mm	±0.1 mm
Over 6 to 30 mm	±0.2 mm
Over 30 to 120 mm	±0.3 mm
Over 120 to 400 mm	±0.5 mm
Over 400 to 1000 mm	±0.8 mm

3 Safety notices

Information:

B&R makes every effort to keep this technical description as current as possible. The latest version of this technical description is available in PDF format on the B&R website (www.br-automation.com). For specifications that are not listed here, see the user's manual for the complete device being used.

Information:

The following specified characteristic data, features and limit values are only valid for these individual components and may differ from those of the complete system. The data specified for the complete system applies to the complete system in which this individual component is used, for example.

Caution!

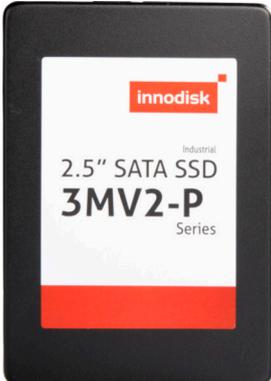
A sudden power failure can result in data loss! In very rare cases, the mass storage device may also be damaged!

The preventive use of a UPS is therefore recommended.

Use with third-party devices

If third-party devices are used, refer to the corresponding manufacturer's documentation.

4 Order data

Order number	Short description	Figure
	Drives	
5MMSSD.0060-01	60 GB SSD MLC - Innodisk - SATA	 A photograph of a black 2.5-inch SATA SSD. The top surface is white with the Innodisk logo in red and black. Below the logo, it reads "Industrial 2.5 inch SATA SSD 3MV2-P Series". The bottom edge of the drive is red.
5MMSSD.0128-01	128 GB SSD MLC - Innodisk - SATA	
5MMSSD.0256-00	256 GB SSD MLC - Innodisk - SATA	
5MMSSD.0512-00	512 GB SSD MLC - Innodisk - SATA	
5MMSSD.1024-00	1 TB SSD MLC - Innodisk - SATA	

5 5MMSSD.0060-01

5.1 Technical data for Rev. F0 and later

Product ID	5MMSSD.0060-01
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	60 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 3,000,000 h (at 25°C)
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 520 MB/s
Continuous writing	Max. 180 MB/s
IOPS ²⁾	
4k read	Max. 75,000 (random)
4k write	Max. 46,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	192 TBW ³⁾
Client workload	35 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-55 to 95°C
Transport	-55 to 95°C
Relative humidity	
Operation	10 to 95%, non-condensing
Storage	10 to 95%, non-condensing
Transport	10 to 95%, non-condensing
Vibration	
Operation	10 to 2000 Hz: 20 g
Storage	10 to 2000 Hz: 20 g
Transport	10 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	78 g
Vendor information	
Manufacturer	Innodisk
Manufacturer's product ID	2.5" SATA SSD 3MV2-P 60 GB

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

5.1.1 Temperature/Humidity diagram

5MMSSD.0060-01 ≥ Rev. F0

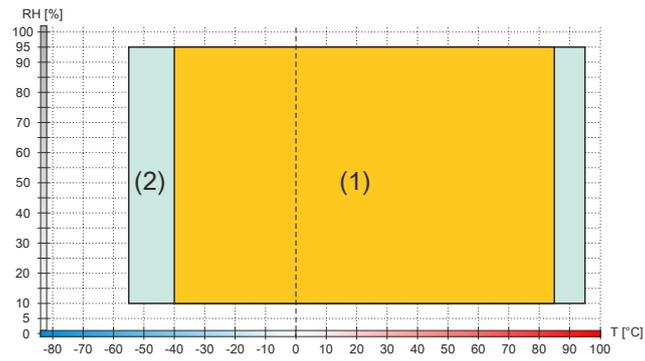


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5.2 Technical data up to Rev. E0

Model number	5MMSSD.0060-01		
Revision	C0	D0	E0
General information			
Certifications			
CE	Yes		
UL	cULus E115267 Industrial control equipment		
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾		
Solid-state drive			
Capacity	60 GB		
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read		
MTBF	Min. 1,500,000 h		
S.M.A.R.T. support	Yes		
Interface	SATA		
Servicing	None		
Continuous reading	Max. 510 MB/s		
Continuous writing	Max. 430 MB/s		
IOPS ²⁾			
4k read	Max. 50,000 (random)		
4k write	Max. 25,000 (random)		
Endurance			
MLC flash memory	Yes		
Data volume			
Theoretical	192 TBW ³⁾		
Client workload	35 TBW ⁴⁾		47 TBW ⁴⁾
Compatibility	SATA 3.0 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)		
Operating conditions			
Pollution degree per EN 61131-2	Pollution degree 2		
Ambient conditions			
Temperature			
Operation	0 to 70°C	-30 to 85°C	-40 to 85°C
Storage	-40 to 85°C		
Transport	-40 to 85°C		
Relative humidity			
Operation	8 to 90%, non-condensing	5 to 90%, non-condensing	
Storage	8 to 95%, non-condensing	5 to 95%, non-condensing	
Transport	8 to 95%, non-condensing	5 to 95%, non-condensing	
Vibration			
Operation	10 to 2000 Hz: 20 g		
Storage	10 to 2000 Hz: 20 g		
Transport	10 to 2000 Hz: 20 g		
Shock			
Operation	1500 g, 0.5 ms		
Storage	1500 g, 0.5 ms		
Transport	1500 g, 0.5 ms		
Elevation			
Operation	-300 to 12,192 m		
Storage	-300 to 12,192 m		
Transport	-300 to 12,192 m		
Mechanical properties			
Dimensions			
Width	9.5 mm	7 mm	
Height	69 mm		
Depth	100 mm		
Weight	78 g		
Vendor information			
Manufacturer	Toshiba		
Manufacturer's product ID	THNSNH060GBST	THNSNJ060WCST	THNSNJ060WCSU

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

5.2.1 Temperature/Humidity diagram

5MMSSD.0060-01 ≤ Rev. C0

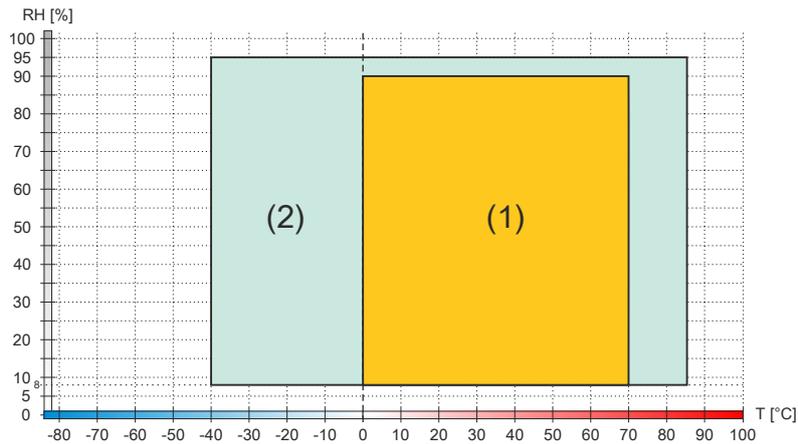


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5MMSSD.0060-01 Rev. D0

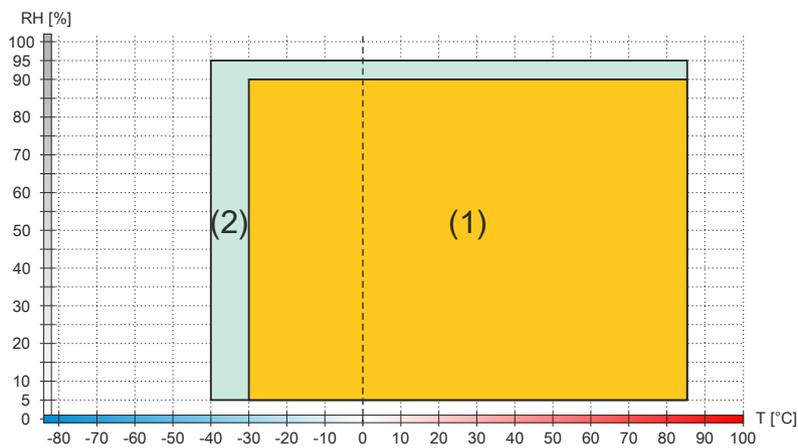


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5MMSSD.0060-01 ≥ Rev. E0

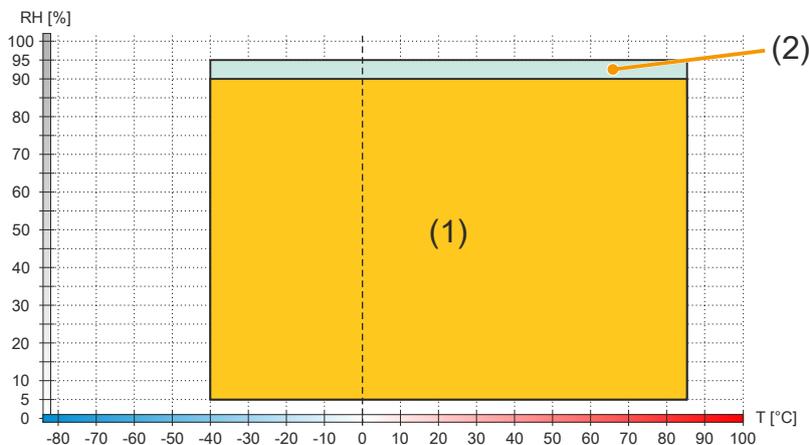


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

6 5MMSSD.0128-01

6.1 Technical data for Rev. F0 and later

Model number	5MMSSD.0128-01
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	128 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 3,000,000 h
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 520 MB/s
Continuous writing	Max. 350 MB/s
IOPS ²⁾	
4k read	Max. 75,000 (random)
4k write	Max. 80,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	384 TBW ³⁾
Client workload	150 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Operating conditions	
Pollution degree per EN 61131-2	Pollution degree 2
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-55 to 95°C
Transport	-55 to 95°C
Relative humidity	
Operation	10 to 95%, non-condensing
Storage	10 to 95%, non-condensing
Transport	10 to 95%, non-condensing
Vibration	
Operation	7 to 2000 Hz: 20 g
Storage	7 to 2000 Hz: 20 g
Transport	7 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	Approx. 90 g
Vendor information	
Manufacturer	Innodisk
Manufacturer's product ID	2.5" SATA SSD 3MV2-P 128 GB

1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.

2) IOPS: Random read and write input/output operations per second

3) TBW = Terabytes written

4) Client workload per JEDEC JESD219 standard.

6.1.1 Temperature/Humidity diagram

5MMSSD.0128-01 ≥ Rev. F0

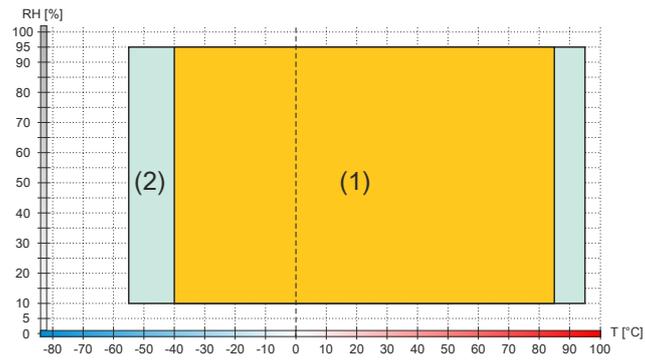


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

6.2 Technical data up to Rev. E0

Model number	5MMSSD.0128-01		
Revision	E0	D0	C0
General information			
Certifications	Yes		
CE	Yes		
UL	cULus E115267 Industrial control equipment		
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾		
Solid-state drive			
Capacity	128 GB		
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read		
MTBF	Min. 1,500,000 h		
S.M.A.R.T. support	Yes		
Interface	SATA		
Servicing	None		
Continuous reading	Max. 510 MB/s		
Continuous writing	Max. 450 MB/s		
IOPS ²⁾			
4k read	Max. 85,000 (random)		
4k write	Max. 35,000 (random)		
Endurance			
MLC flash memory	Yes		
Data volume			
Theoretical	384 TBW ³⁾		
Client workload	100 TBW ⁴⁾		74 TBW ⁴⁾
Compatibility	SATA 3.0 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)		
Operating conditions			
Pollution degree per EN 61131-2	Pollution degree 2		
Ambient conditions			
Temperature			
Operation	-40 to 85°C	-30 to 85°C	0 to 70°C
Storage	-40 to 85°C		
Transport	-40 to 85°C		
Relative humidity			
Operation	5 to 90%, non-condensing		8 to 90%, non-condensing
Storage	5 to 95%, non-condensing		8 to 95%, non-condensing
Transport	5 to 95%, non-condensing		8 to 95%, non-condensing
Vibration			
Operation	10 to 2000 Hz: 20 g		
Storage	10 to 2000 Hz: 20 g		
Transport	10 to 2000 Hz: 20 g		
Shock			
Operation	1500 g, 0.5 ms		
Storage	1500 g, 0.5 ms		
Transport	1500 g, 0.5 ms		
Elevation			
Operation	-300 to 12,192 m		
Storage	-300 to 12,192 m		
Transport	-300 to 12,192 m		
Mechanical properties			
Dimensions			
Width	7 mm		9.5 mm
Height	69 mm		
Depth	100 mm		
Weight	78 g		
Vendor information			
Manufacturer	Toshiba		
Manufacturer's product ID	THNSNJ128WCSU	THNSNJ128WCST	THNSNH128GBST

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

6.2.1 Temperature/Humidity diagram

5MMSSD.0128-01 ≤ Rev. C0

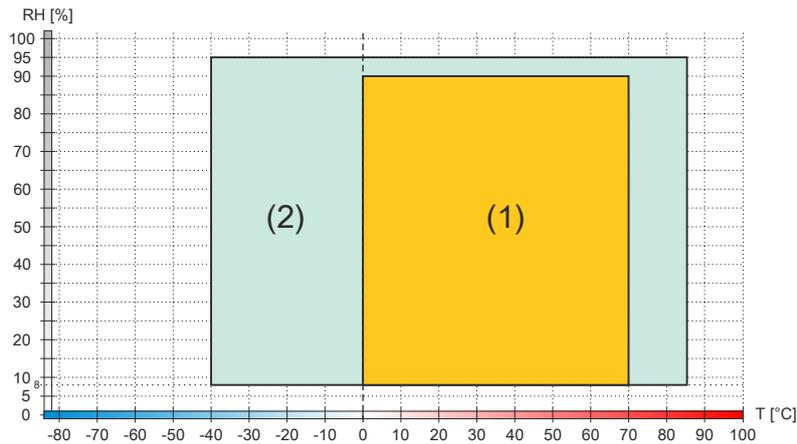


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5MMSSD.0128-01 Rev. D0

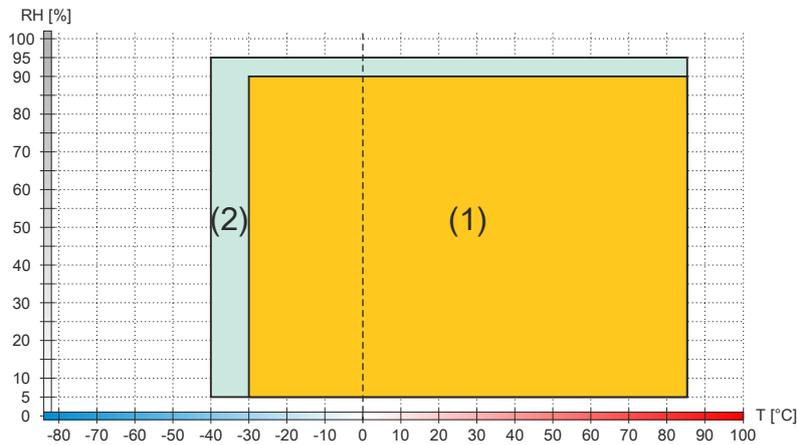


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5MMSSD.0128-01 ≥ Rev. E0

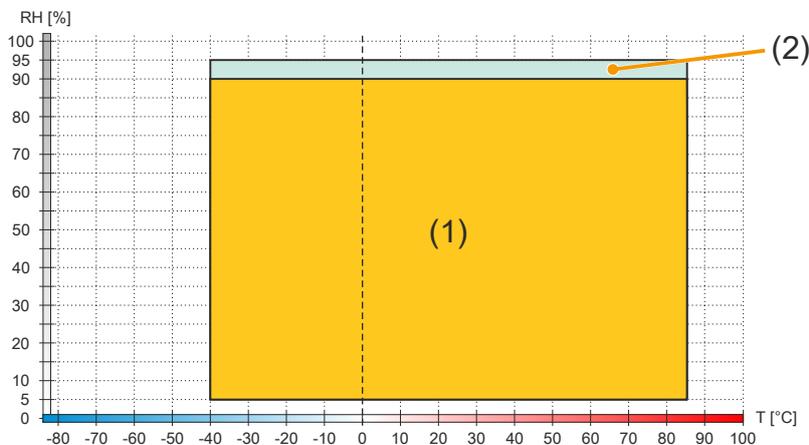


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

7 5MMSSD.0256-00

7.1 Technical data for Rev. E0 and later

Model number	5MMSSD.0256-00
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	256 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 3,000,000 h
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 520 MB/s
Continuous writing	Max. 350 MB/s
IOPS ²⁾	
4k read	Max. 75,000 (random)
4k write	Max. 83,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	768 TBW ³⁾
Client workload	300 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Operating conditions	
Pollution degree per EN 61131-2	Pollution degree 2
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-55 to 95°C
Transport	-55 to 95°C
Relative humidity	
Operation	10 to 95%, non-condensing
Storage	10 to 95%, non-condensing
Transport	10 to 95%, non-condensing
Vibration	
Operation	7 to 2000 Hz: 20 g
Storage	7 to 2000 Hz: 20 g
Transport	7 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	Approx. 90 g
Vendor information	
Manufacturer	Innodisk
Manufacturer's product ID	2.5" SATA SSD 3MV2-P 256 GB

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

7.1.1 Temperature/Humidity diagram

5MMSSD.0256-00 ≤ Rev. E0

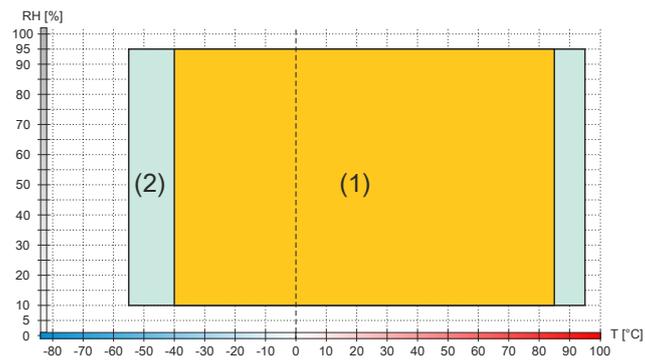


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

7.2 Technical data up to Rev. D0

Model number	5MMSSD.0256-00	
Revision	D0	C0
General information		
Certifications	Yes	
CE	cULus E115267	
UL	Industrial control equipment	
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾	
Solid-state drive		
Capacity	256 GB	
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read	
MTBF	Min. 1,500,000 h	
S.M.A.R.T. support	Yes	
Interface	SATA	
Servicing	None	
Continuous reading	Max. 510 MB/s	
Continuous writing	Max. 460 MB/s	
IOPS ²⁾		
4k read	Max. 90,000 (random)	
4k write	Max. 35,000 (random)	
Endurance		
MLC flash memory	Yes	
Data volume		
Theoretical	768 TBW ³⁾	
Client workload	200 TBW ⁴⁾	148 TBW ⁴⁾
Compatibility	SATA 3.0 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)	
Operating conditions		
Pollution degree per EN 61131-2	Pollution degree 2	
Ambient conditions		
Temperature		
Operation	-40 to 85°C	-30 to 85°C
Storage	-40 to 85°C	
Transport	-40 to 85°C	
Relative humidity		
Operation	5 to 90%, non-condensing	
Storage	5 to 95%, non-condensing	
Transport	5 to 95%, non-condensing	
Vibration		
Operation	10 to 2000 Hz: 20 g	
Storage	10 to 2000 Hz: 20 g	
Transport	10 to 2000 Hz: 20 g	
Shock		
Operation	1500 g, 0.5 ms	
Storage	1500 g, 0.5 ms	
Transport	1500 g, 0.5 ms	
Elevation		
Operation	-300 to 12,192 m	
Storage	-300 to 12,192 m	
Transport	-300 to 12,192 m	
Mechanical properties		
Dimensions		
Width	7 mm	
Height	69 mm	
Depth	100 mm	
Weight	78 g	
Vendor information		
Manufacturer	Toshiba	
Manufacturer's product ID	THNSNJ256WCSU	THNSNJ256WCST

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

7.2.1 Temperature/Humidity diagram

5MMSSD.0256-00 ≤ Rev. C0

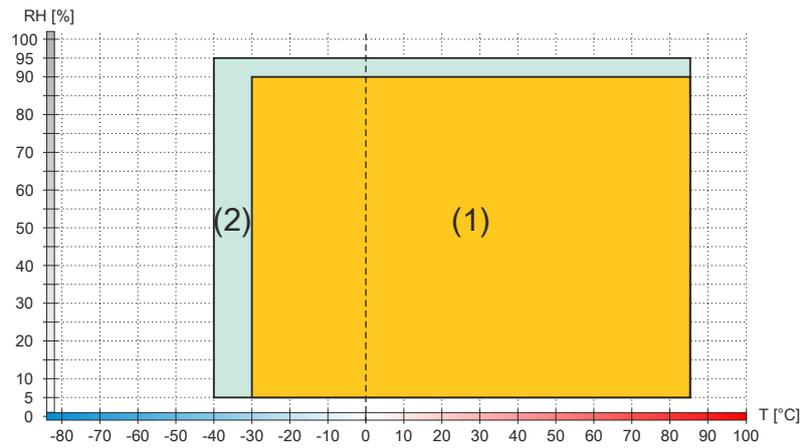


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

5MMSSD.0256-00 ≤ Rev. D0

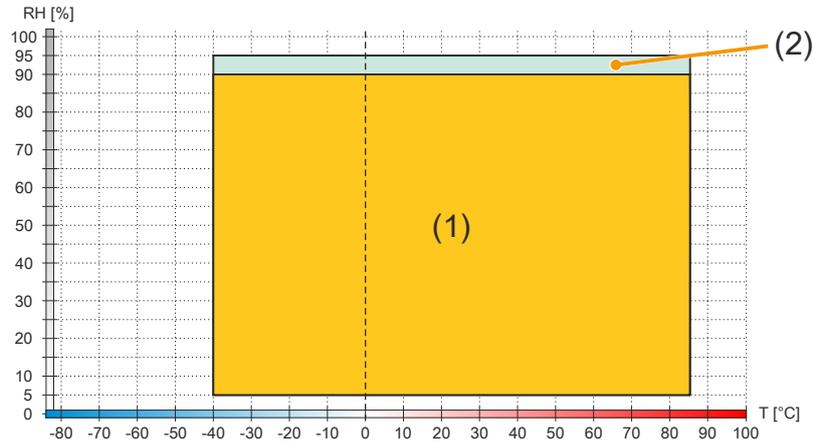


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

8 5MMSSD.0512-00

8.1 Technical data for Rev. D0 and later

Model number	5MMSSD.0512-00
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	512 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 3,000,000 h
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 520 MB/s
Continuous writing	Max. 450 MB/s
IOPS ²⁾	
4k read	Max. 75,000 (random)
4k write	Max. 76,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	1536 TBW ³⁾
Client workload	600 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Operating conditions	
Pollution degree per EN 61131-2	Pollution degree 2
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-55 to 95°C
Transport	-55 to 95°C
Relative humidity	
Operation	10 to 95%, non-condensing
Storage	10 to 95%, non-condensing
Transport	10 to 95%, non-condensing
Vibration	
Operation	7 to 2000 Hz: 20 g
Storage	7 to 2000 Hz: 20 g
Transport	7 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	Approx. 90 g
Vendor information	
Manufacturer	Innodisk
Manufacturer's product ID	2.5" SATA SSD 3MV2-P 512 GB

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

8.1.1 Temperature/Humidity diagram

5MMSSD.0512-00 ≤ Rev. D0

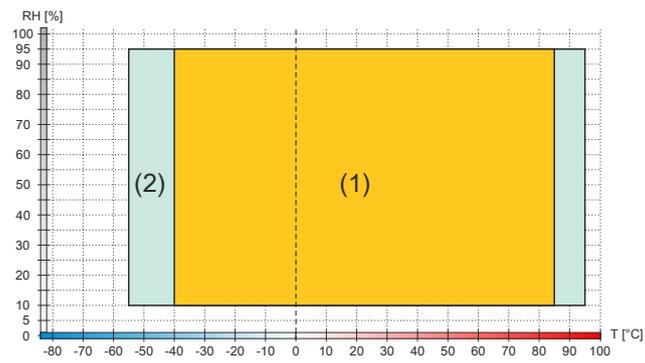


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

8.2 Technical data up to Rev. C0

Model number	5MMSSD.0512-00
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	512 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 1,500,000 h
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 510 MB/s
Continuous writing	Max. 460 MB/s
IOPS ²⁾	
4k read	Max. 90,000 (random)
4k write	Max. 35,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	1536 TBW ³⁾
Client workload	400 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Operating conditions	
Pollution degree per EN 61131-2	Pollution degree 2
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-40 to 85°C
Transport	-40 to 85°C
Relative humidity	
Operation	5 to 90%, non-condensing
Storage	5 to 95%, non-condensing
Transport	5 to 95%, non-condensing
Vibration	
Operation	10 to 2000 Hz: 20 g
Storage	10 to 2000 Hz: 20 g
Transport	10 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	78 g
Vendor information	
Manufacturer	Toshiba
Manufacturer's product ID	THNSNJ512WCSU

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

8.2.1 Temperature/Humidity diagram

5MMSSD.0512-00 ≤ Rev. C0

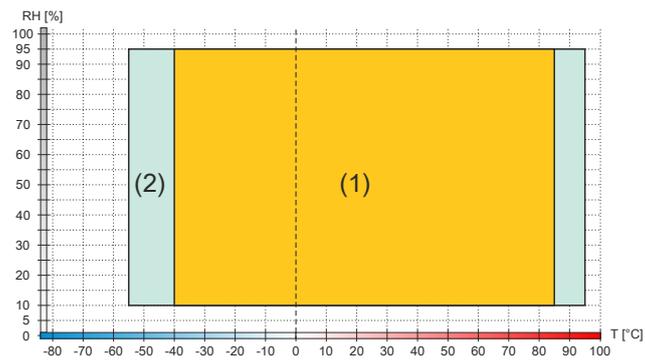


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

9 5MMSSD.1024-00

9.1 Technical data for Rev. D0 and later

Model number	5MMSSD.1024-00
General information	
Certifications	
CE	Yes
UL	cULus E115267 Industrial control equipment
HazLoc	cULus HazLoc E180196 Industrial control equipment for hazardous locations Class I, Division 2, Groups ABCD ¹⁾
Solid-state drive	
Capacity	1024 GB
Data reliability	Max. 1 unrecoverable error per 10 ¹⁵ bits read
MTBF	Min. 3,000,000 h
S.M.A.R.T. support	Yes
Interface	SATA
Servicing	None
Continuous reading	Max. 520 MB/s
Continuous writing	Max. 450 MB/s
IOPS ²⁾	
4k read	Max. 75,000 (random)
4k write	Max. 78,000 (random)
Endurance	
MLC flash memory	Yes
Data volume	
Theoretical	3072 TBW ³⁾
Client workload	1172 TBW ⁴⁾
Compatibility	SATA 3.1 compliant ACS-2 SSD Enhanced SMART ATA feature set Native Command Queuing (NCQ)
Ambient conditions	
Temperature	
Operation	-40 to 85°C
Storage	-55 to 95°C
Transport	-55 to 95°C
Relative humidity	
Operation	10 to 95%, non-condensing
Storage	10 to 95%, non-condensing
Transport	10 to 95%, non-condensing
Vibration	
Operation	10 to 2000 Hz: 20 g
Storage	10 to 2000 Hz: 20 g
Transport	10 to 2000 Hz: 20 g
Shock	
Operation	1500 g, 0.5 ms
Storage	1500 g, 0.5 ms
Transport	1500 g, 0.5 ms
Mechanical properties	
Dimensions	
Width	7 mm
Height	69 mm
Depth	100 mm
Weight	Approx. 90 g
Vendor information	
Manufacturer	Innodisk
Manufacturer's product ID	2.5" SATA SSD 3MV2-P 1 TB

- 1) Yes, but applies only if all components installed in the complete system have this certification and the complete system bears the corresponding mark.
- 2) IOPS: Random read and write input/output operations per second
- 3) TBW = Terabytes written
- 4) Client workload per JEDEC JESD219 standard.

9.1.1 Temperature/Humidity diagram

5MMSSD.1024-00 ≤ Rev. D0

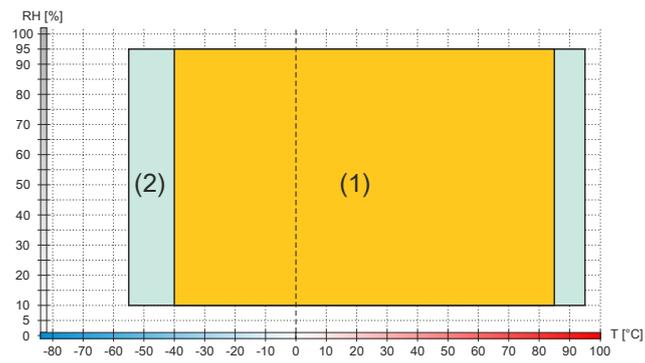


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

Publishing information

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