

USB mass storage device

Aggregate data sheet

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Publishing information

B&R Industrial Automation GmbH

B&R Strasse 1

5142 Eggelsberg

Austria

Telephone: +43 7748 6586-0

Fax: +43 7748 6586-26

office@br-automation.com

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1 Document history

Version	Date	Comment ¹⁾
1.11	November 2022	<ul style="list-style-type: none">• Updated document.
1.10	July 2022	<ul style="list-style-type: none">• First edition of the aggregate data sheet.• Added 5MMUSB.4096-02.

1) Editorial corrections are not listed.

2 General notices

Information:

B&R makes every effort to keep this technical description as current as possible. The current version of this technical description is available for download 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.

3 5MMUSB.xxxx-01

3.1 General information

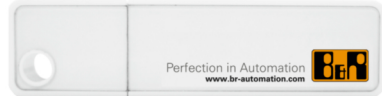
USB flash drives are easily replaceable storage media. Due to the fast data transfer (USB 2.0), USB flash drives offer optimal values for use as portable storage media. Without additional drivers, the USB flash drive immediately reports itself as another drive from which data can be read or to which data can be written (hot plugging).

Information:

Due to the large number of USB flash drives available on the market and their short lifecycles, we reserve the right to supply alternative products. It may therefore be necessary to take the following measures in order to also boot from these USB flash drives:

- The USB flash drive must be reformatted or, in some cases, repartitioned (set partition as active).
- The USB flash drive must be in the first position in the boot sequence; alternatively, the IDE controllers can be disabled in BIOS. In most cases, this can be avoided by running "fdisk / mbr" on the USB flash drive.

3.2 Order data

Order number	Short description	Figure
	USB accessories	
5MMUSB.2048-01	USB 2.0 flash drive 2048 MB B&R	
5MMUSB.4096-01	USB 2.0 flash drive 4096 MB B&R	

3.3 Technical data

Information:

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

Order number	5MMUSB.2048-01	5MMUSB.4096-01
General information		
Capacity	2 GB	4 GB
LEDs	1 LED (green) ¹⁾	
MTBF	>3,000,000 hours	
Servicing	None	
Default file system	FAT32	
Certifications		
CE	Yes	
Interfaces		
USB		
Type	USB 2.0, USB 1.1	
Connection	To any USB type A interface	
Transfer rate	Low speed (1.5 Mbit/s), full speed (12 Mbit/s) to high speed (480 Mbit/s)	
Sequential reading	Full speed: Max. 1 MB/s High speed: Max. 32 MB/s	
Sequential writing	Full speed: Max. 0.9 MB/s High speed: Max. 23 MB/s	
Endurance		
SLC flash memory	Yes	
Data retention	>10 years	
Data reliability	<1 unrecoverable error per 10 ¹⁴ bits read	
Mating cycles	>1500	

Order number	5MMUSB.2048-01	5MMUSB.4096-01
Support		
Operating systems		
Windows 10 IoT Enterprise LTSC 64-bit	Yes	
Windows Embedded 8.1 Industry Pro 32-bit	Yes	
Windows Embedded 8.1 Industry Pro 64-bit	Yes	
Windows 7 32-bit	Yes	
Windows 7 64-bit	Yes	
Windows Embedded Standard 7 32-bit	Yes	
Windows Embedded Standard 7 64-bit	Yes	
Windows XP Professional	Yes	
Windows XP Embedded	Yes	
Windows 2000	Yes	
Windows CE 5.0	Yes	
Windows CE 4.2	Yes	
B&R Linux 9	Yes	
B&R Linux 8	Yes	
Electrical properties		
Current consumption	Max. 0.60 W (In sleep mode: Max. 0.01 W)	
Ambient conditions		
Temperature		
Operation	0 to 70°C ²⁾	0 to 70°C ²⁾
Storage	-50 to 100°C	
Transport	-50 to 100°C	
Relative humidity		
Operation	85%, non-condensing	
Storage	85%, non-condensing	
Transport	85%, non-condensing	
Vibration		
Operation	20 to 2000 Hz: 20 g (peak)	
Storage	20 to 2000 Hz: 20 g (peak)	
Transport	20 to 2000 Hz: 20 g (peak)	
Shock		
Operation	Max. 1500 g (peak)	
Storage	Max. 1500 g (peak)	
Transport	Max. 1500 g (peak)	
Mechanical properties		
Dimensions		
Width	17.97 mm	
Length	67.85 mm	
Height	8.35 mm	

1) Indicates data transfer (transmitting and receiving).

2) The maximum ambient temperature is typically derated 1°C per 1000 meters starting at 500 m above sea level.

3.4 Temperature/Humidity diagram

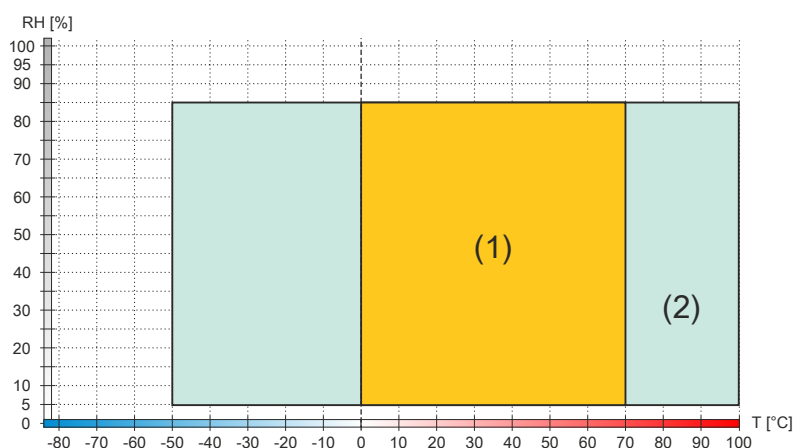


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing

4 5MMUSB.xxxx-02

4.1 General information


USB flash drives are easily replaceable storage media. Due to the fast data transfer (USB 3.0), USB flash drives offer optimal values for use as portable storage media. Without additional drivers, the USB flash drive immediately reports itself as another drive from which data can be read or to which data can be written (hot plugging). USB 3.0 (XHCI) is supported in Windows 7 and later (USB 3.0 driver required).

Information:

Due to the large number of USB flash drives available on the market and their short lifecycles, we reserve the right to supply alternative products. It may therefore be necessary to take the following measures in order to also boot from these USB flash drives:

- The USB flash drive must be reformatted or, in some cases, repartitioned (set partition as active).
- The USB flash drive must be in the first position in the boot sequence; alternatively, the IDE controllers can be disabled in BIOS. In most cases, this can be avoided by running "fdisk / mbr" on the USB flash drive.

4.2 Order data

Order number	Short description	Figure
	USB accessories	
5MMUSB.4096-02	USB 3.0 flash drive 4096 MB SLC - Only for HMI products	
5MMUSB.032G-02	USB 3.0 flash drive 32 GB MLC - Only for HMI products	

4.3 Technical data

Information:

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

Order number	5MMUSB.4096-02	5MMUSB.032G-02
General information		
Capacity	4 GB	32 GB
LEDs	1 LED (green) ¹⁾	
MTBF	>3,000,000 hours	
Servicing	None	
Default file system	FAT32	None
Certifications		
CE	Yes (CE of the component manufacturer)	Yes
Interfaces		
USB		
Type	USB 3.0	
Connection	To any USB type A interface	
Transfer rate	High speed (480 Mbit/s) to SuperSpeed (4 Gbit/s)	
Sequential reading	Max. 40 MB/s	Max. 100 MB/s
Sequential writing	Max. 35 MB/s	Max. 50 MB/s
Endurance		
SLC flash memory	Yes	-
MLC flash memory	-	Yes
Data retention	10 years	
Data reliability	<1 unrecoverable error per 10 ¹⁶ bits read	
Mating cycles	>1500	
Electrical properties		
Power consumption	Max. 0.45 W (In sleep mode: Max. 0.27 W)	Max. 0.66 W (In sleep mode: Max. 0.34 W)

Order number	5MMUSB.4096-02	5MMUSB.032G-02
Ambient conditions		
Temperature		
Operation	0 to 70°C ²⁾	
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	Max. 1500 g, 0.5 ms	
Storage	Max. 1500 g, 0.5 ms	
Transport	Max. 1500 g, 0.5 ms	
Mechanical properties		
Dimensions		
Width	16.6 mm	
Length	48.6 mm	
Height	7.6 mm	
Weight	Approx. 10 g	

1) Indicates data transfer (transmitting and receiving).

2) The maximum ambient temperature is typically derated 1°C per 1000 meters starting at 500 m above sea level.

4.4 Temperature/Humidity diagram

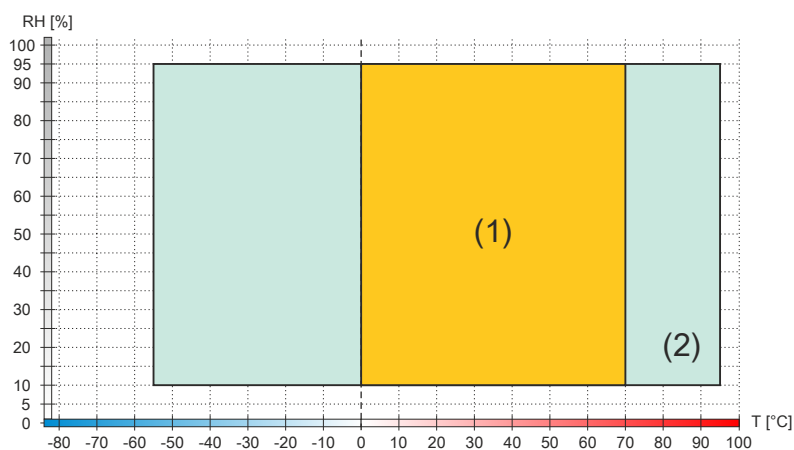


Diagram legend			
(1)	Operation	T [°C]	Temperature in °C
(2)	Storage and transport	RH [%]	Relative humidity (RH) in percent and non-condensing