TERZ
Industrial Electronics

KALIBER-XS1

Industrial M12 USB Flash Drives

Reliable and secure data storage under harsh environmental conditions

- Failure-resistant SLC NAND Flash
- Ultra-compact robust design
- Temperature range -40 to + 70°C
- Error Checking and Correction ECC
- IP65/67 stainless steel housing
- M12 connector A-coded 4-pin
- Industry & railway DIN EN 50155
- Flash memory management

Industrial M12 USB Flash Drives

Access to reliable and secure data storage is often needed locally without the dependency on cloud storage, the KALIBER-XS1 are the ideal Plug&Play solution. The most compact M12 USB stick worldwide have been designed and developed for use in continuous operation under extreme environmental conditions. The superior shock and vibration resistance, the robust IP65/67 stainless steel housing, high dielectric strength and the extended temperature range make the USB Flash Drives suitable for industrial use and railways (DIN EN 50155). To ensure the highest level of data integrity and maximum endurance in data storage, a powerful Flash Management is used to handle the memory inside the USB drive. The ultra-compact design and low power consumption make the KALIBER-XS1 ideal for use in highly optimized applications requiring extreme ruggedness and reliability.

General

USB standard: USB 2.0
Compatibility: USB 2.0 (USB 1.1 and USB 3.0)
Termination: M12 4-pin A-coded male
Dimensions l x d: 55,5 x 21.4 mm
Weight: 57 g
Material: stainless steel 1.4305
IP Protection class (operation)**:** IP65/67
Isolation: 2,250 VDC shield to electronics
MTBF (SN 29500, Mio. h)**:** 9.519

Flash Memory

Technology: Single-level cell (SLC) NAND Flash
Data Retention: Increased by flash memory management
Endurance: Increased by flash memory management

Capacity	1 Gbit	4 Gbit	8 Gbit	16 Gbit
Technology	SLC	SLC	SLC	SLC
Usable memory (MB)	90	420	880	1700
Over-Provisioning (%)	5	5	5	5

Flash Memory Management

Wear-Levelling: Yes
Error Correction Code (ECC): Yes
Read-Disturb-Management: Yes
Power-Fail Management: Yes
Bad-Block Management: Yes
Over-Provisioning: Yes
Dynamic Data Refresh: Yes

Speed

Sequential reading: up to 21 MB/s
Sequential writing: up to 16 MB/s
Average access time: < 1 ms

Power consumption

Nominal voltage: 5 VDC ± 10% via USB port
Power consumption Read mode: 70 mA
Power Consumption Write Mode: 75 mA
Power consumption Standby mode: 40 mA

Approvals and certifications

CE, DIN EN 50155

Status and diagnostic indicators

LED: Power / Data transfer

EMC and environmental specifications

Operating temperature: -40°C to 70°C
Storage temperature: -40°C to 85°C
Relative humidity (operation): 0%-95% (not condensing)
Relative humidity (storage): 0%-95% (not condensing)
Atmospheric pressure (operation): 2,000 m (795 hPa)
EMC immunity: DIN EN - 50121-3-2, 61000-6-2, 55024
EMC radiated emission: DIN EN - 50121-3-2, 61000-6-4, 55032
Mechanical stability: DIN EN 61373

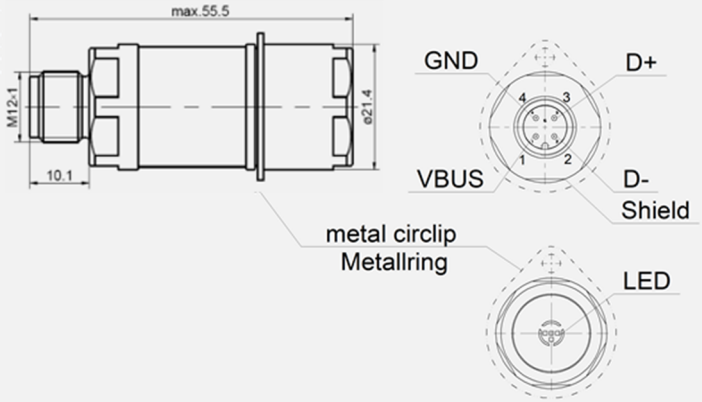
Pin assignment

Pin	Name	Description
1	VBUS	+5 VDC
2	D-	Data-
3	D+	Data+
4	GND	0 VDC
Fitting	Shield	Housing

Loss protection ring

Metal circlip with 3.5 mm hole for fixing: Yes, special Art.-No.

Drawing



Products

Article	Art.-No.	Specification
KALIBER-XS1-1100	911100	M12 A-coded, 8Gbit SLC
KALIBER-XS1-1101	911101	M12 A-coded, 1Gbit SLC
KALIBER-XS1-1102	911102	M12 A-coded, 4Gbit SLC
KALIBER-XS1-1103	911103	M12 A-coded,16Gbit SLC
KALIBER-XS1-1110	911110	M12 A-coded, 8Gbit SLC, Circlip
KALIBER-XS1-1111	911111	M12 A-coded, 1Gbit SLC, Circlip
KALIBER-XS1-1112	911112	M12 A-coded, 4Gbit SLC, Circlip
KALIBER-XS1-1113	911113	M12 A-coded,16Gbit SLC, Circlip

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