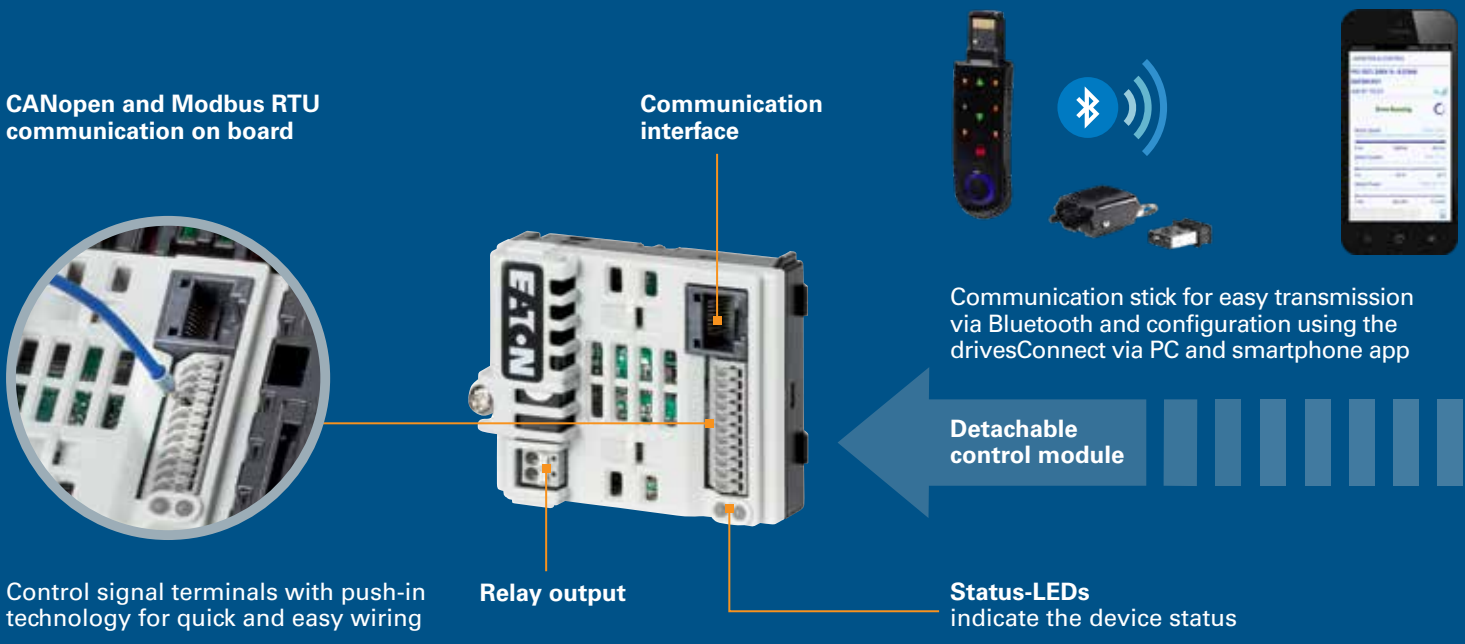
Frequency controls with minimal space requirements

Eaton's smallest class of frequency drives

Powering Business Worldwide

Frequency control even in tight spaces

The PowerXL™ DB1 brings together all the functions of the established DC1 series while conforming to the smallest IEC-compatible size. Thanks to the cold plate technology, this powerful device is the ideal solution for customers who want to integrate frequency drives into existing systems that lack the space for heat sinks or proper ventilation.



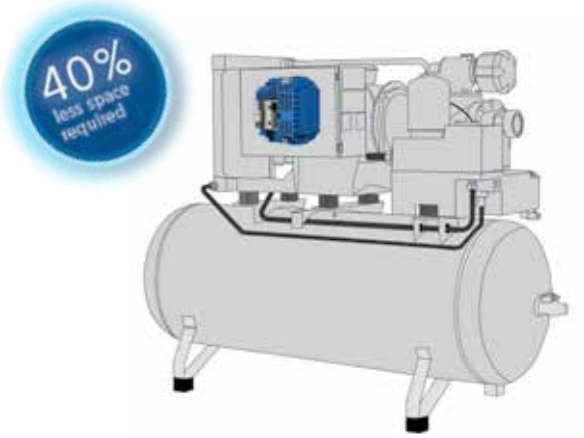
Advantages at a glance

Compact frequency controls

At a height of merely 74 mm, the DB1 in frame size 1 is a frequency drive in the smallest IEC-compatible class. This compact size is the result of eliminating the need for any display, keypad or heat sink. As such, the DB1 takes up **40 %** less space than a comparable frequency drive with active cooling mechanism.

Wide range of applications

The cold plate unit consists of a power module and a detachable control module. The control module contains several I/O interfaces, as well as ports for CANopen and Modbus-RTU communication. In addition to the COM interface (RJ45), the Modbus protocol is also served by data cables that are routed via two control signal terminals. Thanks to Eaton's push-in technology the wiring of the terminals is carried out in an easy way. In addition, this technology saves time for users during installation.



Compact installation of the DB1 in motors, pumps and compressors.

As the DB1 is fully compatible with Eaton's external keypads, no integrated display or keypad are required.

Cold plate technology

What's it all about?

The DB1 is a cold plate frequency drive that functions without a heat sink. But how does the technology work? It's simple. The cooling of the electronics is handled by the materials in the enclosure itself. This passive cooling effect is achieved for example, by the cold plate being attached to the installation via the panel mounting plate, cast parts or the housing directly. Hence, a system-specific and therefore flexible integration based on customer needs is enabled.

What are your benefits out of this technology?

By eliminating the heat sink, the devices can be installed even in confined spaces that lack sufficient ventilation. Cabinets or enclosures can be sealed off without any problems, as the materials they contain will themselves conduct the heat away from the device. This makes the devices suitable for use in harsh and demanding environments, including high temperatures or humidity.

Tension clamp connection reduces the commissioning time

Performance range of the DB1

- Up to 0.75 kW at system voltages of 115 V
- Up to 1.5 kW at system voltages of 230 V
- Up to 4 kW at system voltages of 400 V

Future-proof – DB1 for all motors up to IE4

The PowerXL DB1 frequency drive can be used to control motors up to the highest efficiency class IE4. It therefore covers the following motors:

- standard induction motors
- three-phase asynchronous motors
- permanent magnet motors (PMM)
- brushless DC motors (BLDC)
- synchronous reluctance motors (SyncRM)

Like all of Eaton's PowerXL frequency drives, the DB1 is IE4 ready.

DB1 PFC – low harmonics made easy

Thanks to power factor compensation (PFC), the DB1 achieves superior harmonic correction. This means that additional accessories for the compensation of harmonics are no longer required, saving both space and installation time. With the PFC devices, the requirements of the DIN EN 61000-3-2 standard for household applications can be easily met. The DB1 with PFC is available with a single-phase 230 V voltage input that covers the power range from 0.75 kW to 1.5 kW.

The DB1 for motors with an output of 0.75 kW also features a multi-voltage input. In addition to single-phase 230 V power supply, input voltages from 115 V to 230 V are also possible, which helps you to reduce the number of versions of your applications intended for global markets.

The DB1 units with PFC are available with a single-phase 115/230 V voltage input in the power ratings 0.75 kW and 1.5 kW.

Data overview

PowerXL DB1 Variable Frequency Drives

Input/output voltage [V]	Motor [kw]	Motor [HP]	Input phases	Output phases	Output current [A]	Brake chopper	Frame size	Part no. Article no.
115 / 230	0.55	1	1	3	3.2	–	1	**DB1-1D3D2FN-N2CC** 199347
115 - 230/230	0.75	1	1	3	4.3	–	1	**DB1-1M4D3FN-N2CC-PFC** 199738
230	1.5	2	1	3	7	–	1	**DB1-1273D0FN-N2CC-PFC** 199739
	0.37	0.5	1	3	2.3	–	1	**DB1-122D3FN-N2CC** 197193
	0.75	1	1	3	4.3	–	1	**DB1-124D3FN-N2CC** 197194
	0.37	0.5	3	3	2.3	–	1	**DB1-322D3FN-N2CC** 199735
	0.75	1	3	3	4.3	–	1	**DB1-324D3FN-N2CC** 199736
	1.5	2	3	3	7	–	1	**DB1-327D3FN-N2CC** 199737
400	0.75	1	3	3	2.2	–	1	**DB1-342D2FN-N2CC** 197196
	1.5	2	3	3	4.1	–	1	**DB1-344D1FN-N2CC** 197197
	2.2	3	3	3	5.8	✓	2	**DB1-345D8FB-N2CC** 197565
	4	5	3	3	9.5	✓	2	**DB1-349D5FB-N2CC** 197566

Accessories

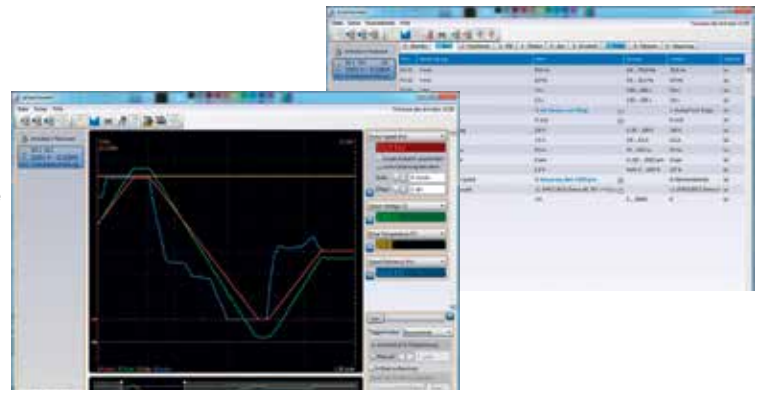
Product image	Description	Part no. Article no.
	Paramater storage and Bluetooth communication stick for parameter transfer to a PC for DB1, DA1, DC1 variable frequency drives and DE1 variable speed starter	**DX-COM-STICK3-KIT** 197586
	Keypad with LED display for DB1, DC1, DA1 variable frequency drives and DE1, DE11 variable speed starter	**DX-KEY-LED2** 186946
	OLED keypad for DB1, DA1 and DC1 variable frequency drives	**DX-KEY-OLED** 169133
	Interface converter USB/RS485 for PC connection of DB, DA1, DC1 variable frequency drives	**DX-CBL-PC-3M0** 744-A3036-00P

Software Download

drivesConnect

Download drivesConnect mobile app

The drivesConnect software is a powerful desktop commissioning tool – for the DB1 as well as for the entire PowerXL family. In addition to parameter setting, the software can also be used to run additional diagnostics via the scope/ data logger function. With this function, values such as motor voltage and motor current can be monitored and recorded during operation.



Data overview

PowerXL DB1 Variable Frequency Drives

Technical data

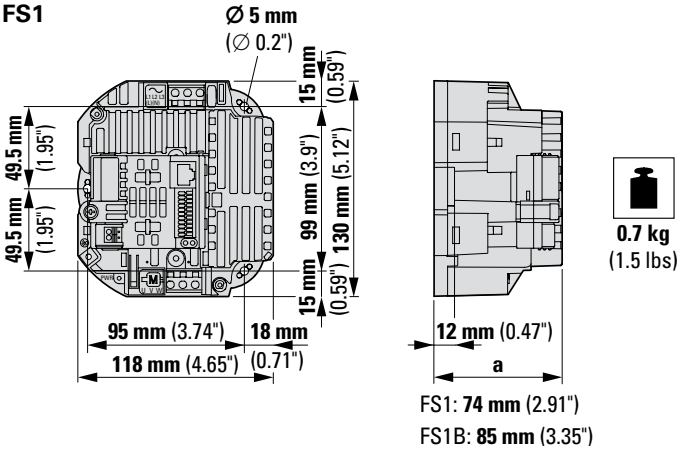
Category		
Supply voltage (+/- 10%)	1~ 200 - 240 V	3 ~ 380 - 480 V
Motor performance	0.37 - 1.5 kW (FS1)	0.75 - 1.5 kW (FS1)
		2.2 - 4 kW (FS2)
EMV filter	EN61800-3 (C1/C2/C3 category)	
Brake chopper	FS1: -	FS2: available
Communication (integrated)	CANopen, Modbus RTU	
Protection class	IP20	
Cold Plate	Yes	
Ambient temperature	-10 to +60 °C (without derating)	
Display/keypad	Remote keypad (optional)	

Category	
Approvals	CE, UL, IEC, EAC

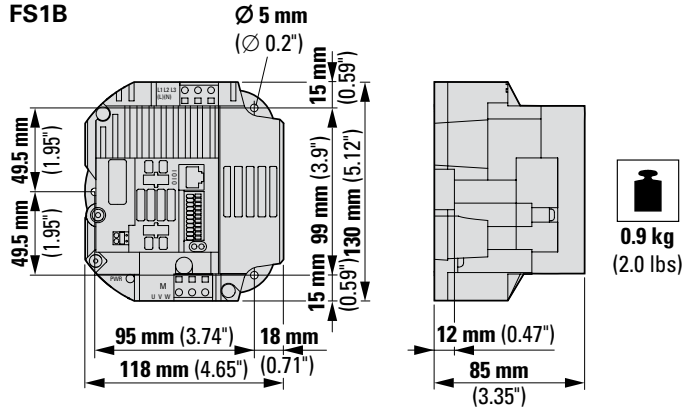
The DB1 variable frequency drive with its approvals is suitable for worldwide use.

Dimensions

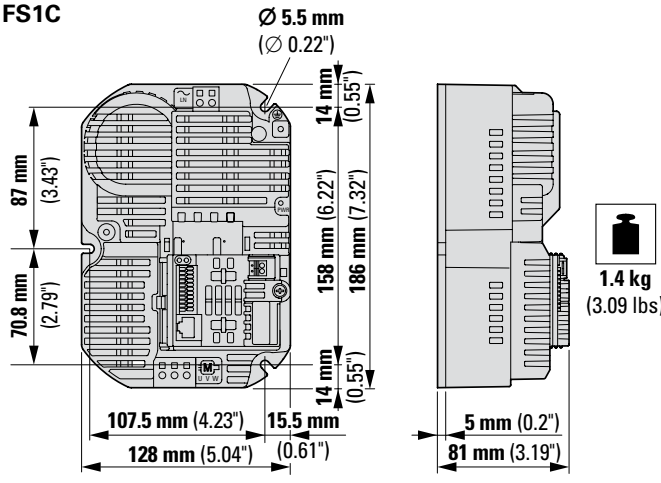
FS1



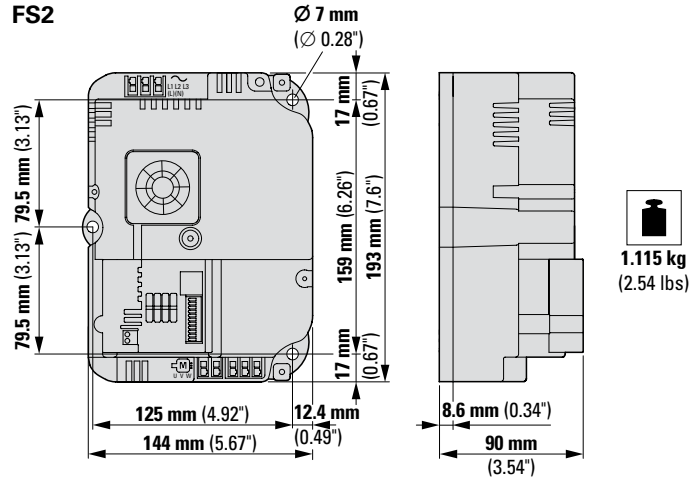
FS1B



FS1C



FS2



Eaton's mission is to improve the quality of life and the environment through the use of power management technologies and services. We provide sustainable solutions that help our customers effectively manage electrical, hydraulic, and mechanical power – more safely, more efficiently, and more reliably. Eaton's 2019 revenues were $21.4 billion, and we sell products to customers in more than 175 countries. We have approximately 95,000 employees.

For more information, visit **Eaton.com**

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