esd electronics gmbh
Vahrenwalder Str. 207
30165 Hannover
Germany

Tel.: +49 511 37298-0
Mail: sales@esd.eu
https://www.esd.eu

Application Note No. 0007

CAN-CBM-Bridge/2 to CAN-CBX-Bridge-FD Migration Guide

www.esd.eu

Date: August 28, 2025

About

This document assists users of the CAN-CBM-Bridge/2 in migrating their applications to the successor device CAN-CBX-Bridge-FD.

It highlights the necessary changes in existing applications as well as the new functions of the CAN-CBX-Bridge-FD.

Affected Products

Old Device	Lifecycle Status	Recommended Successor Device	Lifecycle Status
 **CAN-CBM-Bridge/2** (C.2853.02)	Not available (NV)[1]	 **CAN-CBX-Bridge-FD** (C.3090.02)	Available (VERF)[1]

Background and Information

The **CAN-CBM-Bridge/2 (C.2853.02)**, a compact CAN bridge module, has reached its end of life and is no longer available. Its successor, the **CAN-CBX-Bridge-FD (C.3090.02)**, is designed as a drop-in replacement while offering extended functionality such as **CAN FD support, firmware update capability, and an InRailBus connector**.

In most cases, the CAN-CBX-Bridge-FD can be used as a direct replacement without modifications. However, due to the changed mechanical dimensions, connector positions, and the removal of default bitrates, certain adaptations in the system setup or application software may be required.

Contact for Questions

Technical Support Mail: support@esd.eu Tel.: +49 (0) 511 37298-130
Sales Mail: sales@esd.eu Tel.: +49 (0) 511 37298-0

Technical differences

The following table summarizes the main technical differences between the CAN-CBM-Bridge/2 and its successor, the CAN-CBX-Bridge-FD. These differences should be considered when migrating existing applications.

Device Property	CAN-CBM-Bridge/2	CAN-CBX-Bridge-FD	Migration Impact / Recommendation
Dimensions (without CAN connectors)	20 x 85 x 83 mm	22.5 x 99 x 114.5 mm	Requires more mounting space; check DIN rail installation compatibility
Bus position in housing	CAN0: top CAN1: bottom	CAN0: bottom and InRailBus CAN1: top	Connector orientation changed; wiring must be adapted
Galvanic Isolation of CAN-interfaces	300 V DC, 250 V AC	1 kV	Improved isolation; no migration issue
Default CAN bitrate	125 kbit/s	none	Must be configured via serial interface before CAN operation
CAN FD support	No	Yes	New feature; migration not required unless CAN FD is used
InRailBus connector	No	Yes	Optional use; no migration issue
Configuration selection	2 hex switches	1 hex switch	Different concept, see *Switch Configuration and Query*

Necessary changes in existing application

When replacing the CAN-CBM-Bridge/2 with the CAN-CBX-Bridge-FD, some aspects of the mechanical setup and device configuration differ from the predecessor. The following points must be considered to ensure a smooth migration of existing applications.

Housing and Connectors

The CAN-CBX-Bridge-FD has larger mechanical dimensions (22.5 × 99 × 114.5 mm compared to 20 × 85 × 83 mm) and the orientation of the CAN interfaces has changed:

CAN-CBM-Bridge/2:

- CAN0 at the top
- CAN1 at the bottom

CAN-CBX-Bridge-FD:

- CAN0 at the bottom (parallel with the InRailBus connector)
- CAN1 at the top

Migration impact: Additional mounting space must be provided and existing wiring may need to be adapted.

Contact for Questions

Technical Support Mail: support@esd.eu Tel.: +49 (0) 511 37298-130
Sales Mail: sales@esd.eu Tel.: +49 (0) 511 37298-0

Default CAN Bitrate

The CAN-CBM-Bridge/2 was delivered with a fixed default bitrate of 125 kbit/s. The CAN-CBX-Bridge-FD has **no default bitrate**.

Migration impact: The bitrate must be explicitly configured via the serial interface before the device can be connected to a CAN bus (see [2] CAN-CBX-Bridge-FD Manual, Chapter 4.2.2).

Switch Configuration and Query

CAN-CBM-Bridge/2:

- Equipped with two hex switches for configuration selection.
- In the standard product version, only position 0/0 enabled programming of the device configuration.
- All other switch positions were undefined by default and could only be used if assigned to customer-specific configurations.
- Command D output format = one hexadecimal digit

CAN-CBX-Bridge-FD:

- Equipped with a single hex switch (0…F).
- Supports up to sixteen configuration sets.
- Positions 1, 2, 3, and D are preloaded with factory example configurations; the remaining positions are available for user-specific setups.
- Command D output format = four hexadecimal digits including internal solder bridges.
    - In the standard product version, the first three digits are always 0 and shall be ignored.
    - Only the last digit represents the actual switch position.

Migration impact:

- Applications that relied only on the 0/0 position can usually be migrated without changes.
- If customer-specific switch mappings were used, they must be ported to the new single-switch scheme.
- If Command D is used, software must be adapted to evaluate only the last digit of the output.

Contact for Questions

Technical Support Mail: support@esd.eu Tel.: +49 (0) 511 37298-130
Sales Mail: sales@esd.eu Tel.: +49 (0) 511 37298-0

New Functions of the CAN-CBX-Bridge-FD

In addition to the differences that must be considered during migration, the CAN-CBX-Bridge-FD introduces several new functions that were not available on the CAN-CBM-Bridge/2. These features are optional but may provide additional flexibility and benefits for new applications.

CAN FD Support

- The CAN-CBX-Bridge-FD supports CAN FD communication in addition to CAN CC.
- This enables higher data rates and payload sizes, making the device suitable for modern CAN-based systems.

Extended ID Conversion and Filtering

- Number of conversion assignments per direction increased from 13 (CAN-CBM-Bridge/2) to 32 (CAN-CBX-Bridge-FD).
- Additional configuration options available through bits 30 (RTR frame) and 31 (CAN FD frame).
- This allows the device to map a larger number of CAN identifiers and to explicitly control the handling of RTR and CAN FD frames during conversion.
- Filter masks: The CAN-CBM-Bridge/2 allowed only one 11-bit and one 29-bit mask at the same time. The CAN-CBX-Bridge-FD supports up to four masks per network, enabling more flexible filtering strategies.

InRailBus Connector

- Provides an InRailBus option for power supply and backplane bus integration.
- Simplifies installation in modular systems with shared power and CAN bus infrastructure.

Configuration Protection

- Configuration settings can be secured using a passcode-based protection mechanism.
- This prevents unauthorized modifications of device parameters and ensures reliable operation in sensitive environments.

Simplified Update Mechanism

- On the CAN-CBM-Bridge/2, the firmware update process was complex and not intended for standard users.
- The CAN-CBX-Bridge-FD provides a simplified and fully supported update mechanism.
- This enables straightforward field updates to add new functions or apply fixes without hardware replacement.

Contact for Questions

Technical Support	Mail: support@esd.eu	Tel.: +49 (0) 511 37298-130
Sales	Mail: sales@esd.eu	Tel.: +49 (0) 511 37298-0

Links

[1] esd Product Lifecycle Management: https://esd.eu/en/support/product-lifecycle-management

[2] Product page with link to the manual: https://esd.eu/en/products/can-cbx-bridge-fd

Legal Notes

Document History

Rev.	Changes	Date
1.0	Initial version of the application note	2025-08-28

Technical details are subject to change without further notice.

Contact for Questions

Technical Support Mail: support@esd.eu Tel.: +49 (0) 511 37298-130
Sales Mail: sales@esd.eu Tel.: +49 (0) 511 37298-0