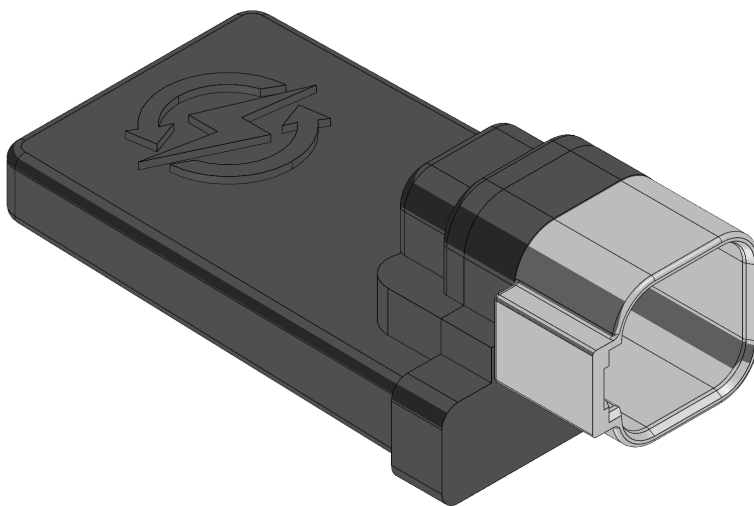




ELECTRANS
TECHNOLOGIES LTD.

ETL CAN Hitch

Datasheet ETL-CB SERIES



Version 1.0

11/2025

Document Number: CAN Hitch-CAN-DS-001-1

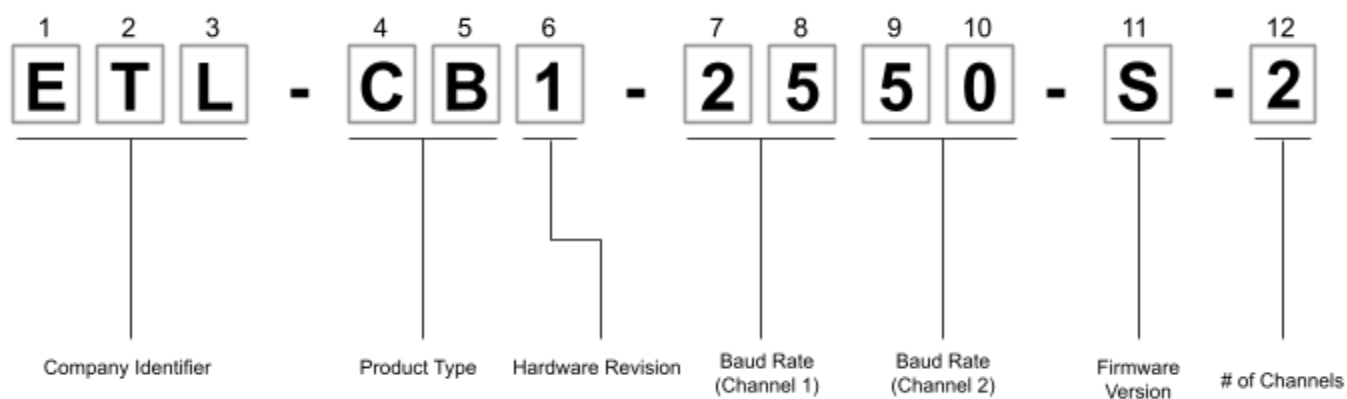
The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Models

Name	Model (CAN0/CAN1)	Part Number
ETL CAN Hitch	250/250 kb/s Bridge	ETL-CB1-2525-S-2
	250/500 kb/s Bridge	ETL-CB1-2550-S-2
	500/500 kb/s Bridge	ETL-CB1-5050-S-2

Explanation of Part Numbers



Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Contents

Explanation of Part Numbers..... 2

Introduction.....4

Applications..... 4

 Properties at a Glance..... 5

Electrical Specifications..... 6

 Connector Face Diagram (Pin Assignment)..... 6

 Electrical Characteristics..... 7

 Power Supply Characteristics.....7

 CAN Driver Characteristics..... 8

 CAN Receiver Characteristics..... 8

 General Specifications..... 9

 Connectors & Mechanical.....9

 CAN Interface..... 9

Software Specifications..... 10

 Core Functionality..... 10

 Performance..... 10

 Pre-Configured Operation..... 11

Mechanical Drawings..... 12

IMPORTANT NOTICE AND DISCLAIMER..... 14



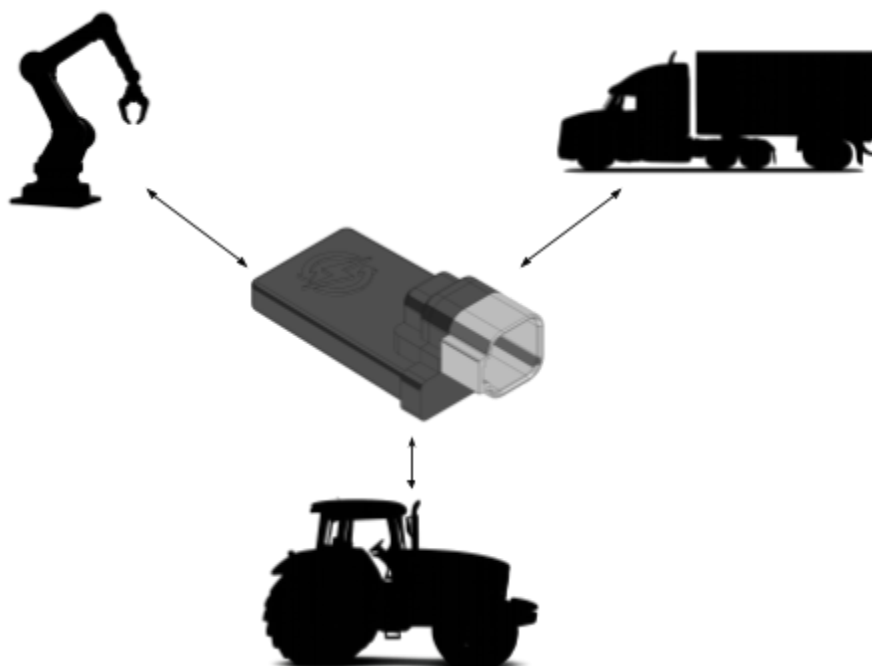
Introduction

This document is the technical datasheet for the Electrans Technologies CAN Hitch J1939 CAN Bridge. It is a compact and powerful dual-channel CAN interface. It is engineered to act as a link to hitch together two independent CAN bus systems. Built around a powerful automotive-grade microcontroller and two independent CAN transceivers, the ETL CAN Hitch provides a reliable hardware foundation for a wide range of applications. From truck to trailer or machine to control hub. The entire electronic assembly is fully encapsulated in Black Rigid Urethane, creating a solid, sealed, and vibration-resistant module for maximum reliability in harsh environments.

Applications

The ETL CAN Hitch is a plug-and-play solution for reliably connecting two CAN bus networks on 12V and 24V architectures. Its simple design makes it ideal for the following situations:

- **Automotive and Commercial Vehicles** (for system integration and diagnostics)
- **Off-Highway and Agricultural Machinery** (e.g., tractors, construction equipment)
- **Industrial Automation and Control Systems** (for bridging factory floor networks)
- **Mobile Robotics and Autonomous Systems** (e.g., AGVs, delivery robots)



Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Properties at a Glance

- **Channels:** 2x CAN Channels (ISO 11898-2:2016)
- **Protocols:** CAN 2.0B (29-bit ID)
- **Baud Rates:** 250 kb/s or 500 kb/s or 250kb/s to 500kb/s (depends on variant)
- **Bus Fault Protection:** -58V to +58V
- **Function:** Factory-programmed as a CAN-to-CAN bridge
- **Operating Voltage:** 8V – 26V DC (12V system compatible)
- **Transient Protection:** +60V Load Dump / -50V Reverse Voltage
- **Operating Temperature:** -40°C to +85°C
- **Storage Temperature:** -50°C to +120°C
- **Enclosure:** Black Rigid Urethane, 83.70mm by 29.43mm
- **Configuration:** Factory-programmed; **not user-configurable**

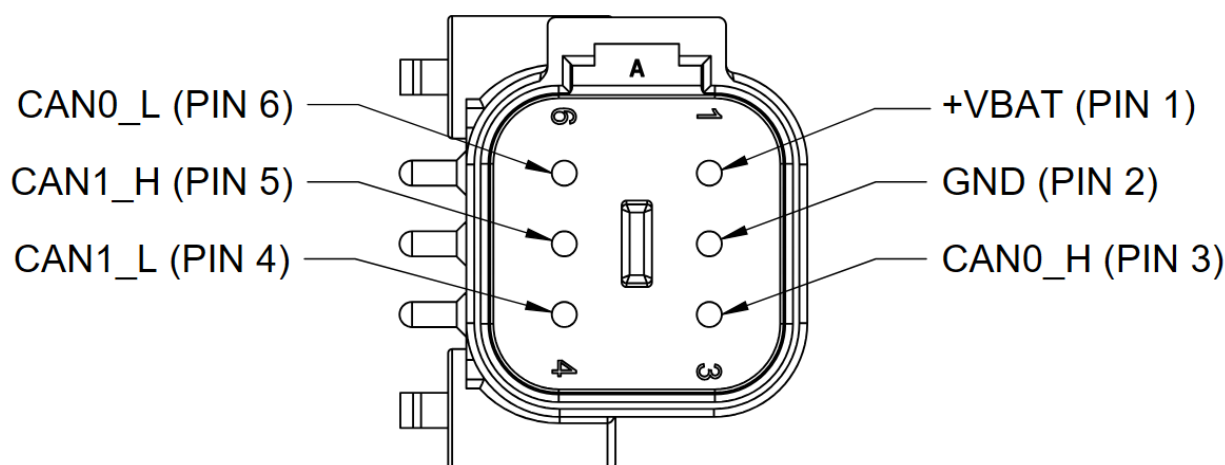


Electrical Specifications

All power and data connections to the module are made through a single, integrated 6-pin, automotive-grade connector. The module is designed to interface with a standard Amphenol ATF13-6P-BM01. The compatible female connector is DT(AT)06-6S or equivalent.

Connector Face Diagram (Pin Assignment)

The view below is looking into the connector on the module.



PIN	SIGNAL	TYPE	DESCRIPTION
1	+VBAT	Power Input	Main Power Supply Input (8 - 26 VDC)
2	GND	Ground Input	System Ground Reference
3	CAN0_H	Communication	CAN Channel 0 - Data High Line
4	CAN1_L	Communication	CAN Channel 1 - Data Low Line
5	CAN1_H	Communication	CAN Channel 1 - Data High Line
6	CAN0_L	Communication	CAN Channel 0 - Data Low Line

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Electrical Characteristics

Over recommended operating conditions with $T = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ (unless otherwise noted)

Power Supply Characteristics

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Input Voltage	V_{IN}	- - -	8	-	26	V
Quiescent Current	I_Q	Idle, no CAN traffic, $V_{IN} = 12\text{V}$	-	15	25	mA
Input Transient Voltage	V_{Trans}	Load Dump (ISO 16750-2)	-	-	+60	V
		Reverse Polarity	-50	-	-	V
Internal Regulated Voltage	V_{OUT}	For internal circuits, $V_{IN} = 12\text{V}$	4.8	5.0	5.2	V

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



CAN Driver Characteristics

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Differential Output Voltage	$V_{OD}(\text{DOM})$	Dominant, $R_L = 60 \Omega$	1.4	2.0	3.0	V
Differential Output Voltage	$V_{OD}(\text{REC})$	Recessive, $R_L = 60 \Omega$	-120	0	12	mV
Recessive Output Common Mode	$V_{OC}(\text{REC})$	No Load	2.0	2.5	3.0	V

CAN Receiver Characteristics

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Common Mode Input Range	V_{CM}	- - -	-30	-	30	V
Differential Input Threshold	$V_{IT,D}$	Dominant	-	-	-	mV
Differential Input Threshold	$V_{IT,R}$	Recessive	-	500	-	mV

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



General Specifications

Connectors & Mechanical

TYPE	Integrated 6-pin sealed connector
CONNECTOR	Amphenol ATF13-6P-BM01
OPERATING TEMPERATURE	-40°C to +85°C
STORAGE TEMPERATURE	-50°C to +120°C

CAN Interface

COUNT	2 Channels, Independent
STANDARD	High-speed CAN (ISO 11898-2: 2016)
SPECIFICATIONS	CAN 2.0B (29-bit ID)
BAUD RATES	250 kb/s or 500 kb/s or 250kb/s to 500kb/s

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Software Specifications

Core Functionality

The ETL CAN Hitch's firmware is factory-programmed. Common pre-configured functions include:

- CAN Bridge: Routing specific, pre-defined messages between the two CAN channels, which may be operating at different baud rates.

Performance

The guaranteed maximum message forwarding rate of the ETL CAN Hitch has been validated under various bus load scenarios. The rates below are based on a practical maximum bus load of 70% to reflect real-world network conditions.

BAUD RATE (Both Channels)	TEST SCENARIO	GUARANTEED MESSAGE FORWARDING RATE
500 kb/s	Unidirectional Load (100% load on one channel)	2592.59Hz
	Bidirectional Load (50% load per channel, favourable priority)	2592.59 Hz
	Bidirectional Load (50% load per channel, unfavourable priority)	1111.11 Hz
250 kb/s	Unidirectional Load (100% load on one channel)	1296.30 Hz
	Bidirectional Load (50% load per channel, favourable priority)	1296.30 Hz
	Bidirectional Load (50% load per channel, unfavourable priority)	925.93 Hz



Pre-Configured Operation

The ETL CAN Hitch is delivered as a pre-configured device and is not field-configurable by the end-user. All operational parameters are programmed at Electrans Technology Ltd. based on the specific part number ordered.

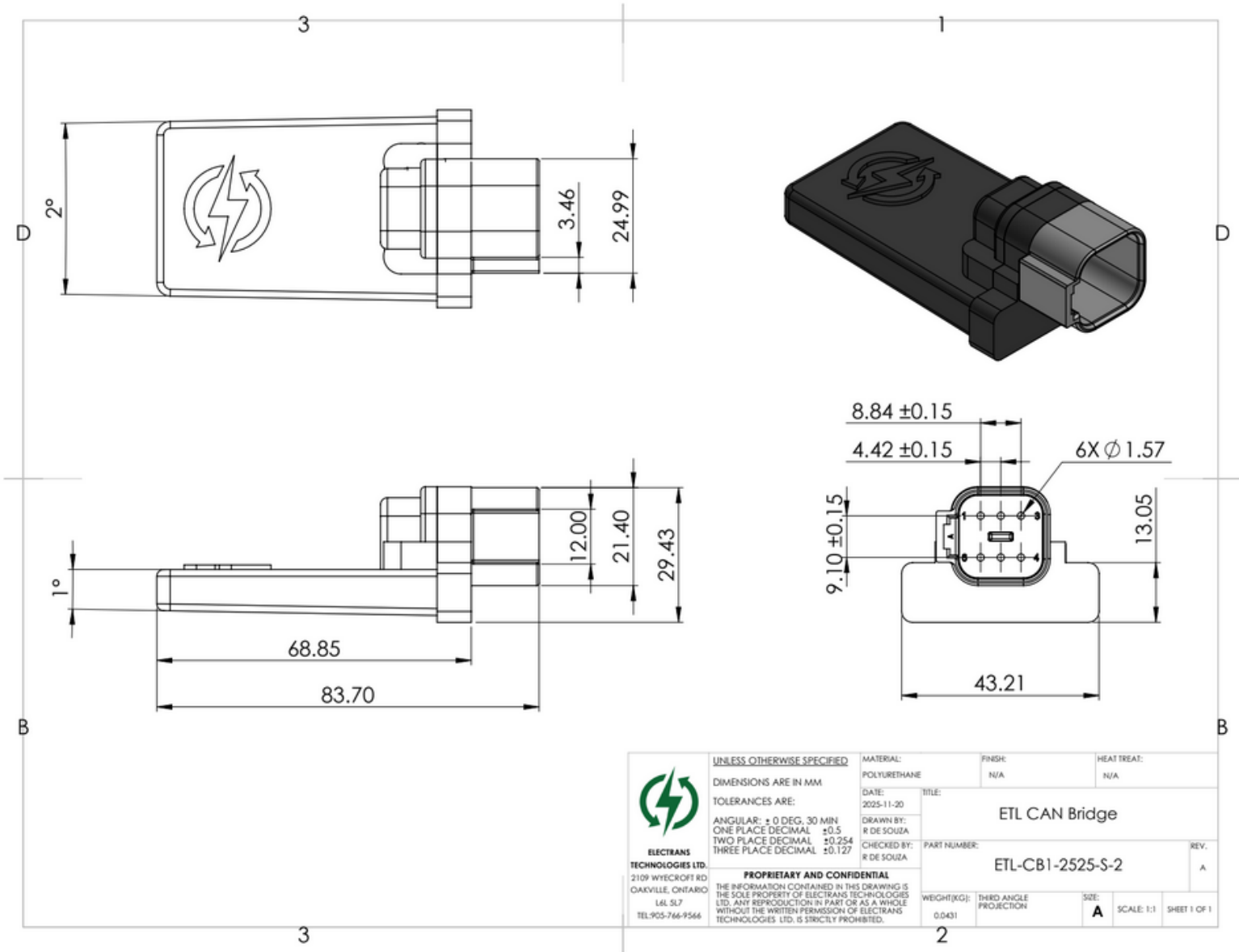
Factory-Programmed Parameters Include:

- CAN0 Baud Rate (Arbitration and Data phases)
- CAN1 Baud Rate (Arbitration and Data phases)

For applications requiring different configurations or custom logic, please contact Electrans Technologies to discuss a custom firmware solution.



Mechanical Drawings



Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



Revision

Revision	Revision Date	Author(s)	Description
00	11/2025	Jeyakumar K.	Initial Release

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.



IMPORTANT NOTICE AND DISCLAIMER

This document is provided for informational purposes only. The information herein is believed to be accurate and reliable, but **Electrans Technologies Ltd. makes no guarantee, representation, or warranty of any kind, whether express or implied, regarding its completeness, accuracy, suitability for any particular purpose, or that its use will ensure failsafe operation.**

All products and information are provided on an **"AS IS"** basis. Electrans Technologies Ltd. expressly disclaims all warranties, including but not limited to, the implied warranties of **MERCHANTABILITY, FITNESS FOR A PARTICULAR APPLICATION, and NON-INFRINGEMENT of any third-party intellectual property rights.**

The customer, as a technically skilled designer, assumes full responsibility for the use of this information and the integration of our products. It is the customer's sole obligation to:

1. Select the appropriate Electrans Technologies product for the intended application.
2. Design, validate, and test the final system to ensure it functions safely and meets all performance requirements.
3. Ensure that the final application complies with all applicable laws, regulations, and safety standards.

Crucially, while Electrans Technologies products may incorporate features designed to enhance reliability, they are not guaranteed to be fail-safe. The customer is solely responsible for designing and implementing adequate system-level safety, redundancy, and fault-tolerance measures to prevent injury, death, or property damage in the event of a product failure.

The information in this document is subject to change at any time without notice. This document is the copyrighted property of Electrans Technologies Ltd. and is provided for the exclusive purpose of supporting the use of Electrans Technologies products.

The provision of this document does not grant or imply any license to any patent, copyright, or other intellectual property right of Electrans Technologies Ltd. or any third party. Unauthorized reproduction or distribution of this document is strictly prohibited.

The customer agrees to indemnify and hold Electrans Technologies Ltd. harmless from any and all claims, liabilities, damages, and expenses that may arise from the customer's use of the information or products described herein.

All sales of Electrans Technologies products are governed by the official Electrans Technologies Terms and Conditions of Sale in effect at the time of purchase. This document does not alter or expand those terms.

Copyright © 2025, Electrans Technologies Ltd. All rights reserved.

Document Revision Date: 11/2025

Document Number: CANB-DS-001

The contents of this document are confidential and proprietary to Electrans Technologies Ltd. and may not be reproduced or circulated without prior written consent.