Kvaser Edge 4xCAN, Type WL400S User's Guide

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https://www.kvaser.com

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1 About this manual

This manual is intended for Kvaser Edge 4xCAN, Type WL400S users. This document contains a description of the hardware's properties.

2 Introduction

This section will describe the functions and features of the Kvaser Edge 4xCAN, Type WL400S.

2.1 Welcome to Kvaser Edge 4xCAN, Type WL400S

Kvaser Edge 4xCAN, Type WL400S is a powerful, ruggedized, and compact data logger and computer with galvanically isolated channels. It is designed for use in data logging and processing missions at the edge.

2.2 Major features

- Designed for effortless execution of data logging and processing missions at the edge.
- Powerful embedded ARM-based Linux computer with ”Secure Element”, NXP SE051C2 faciliating CRA compliance with target software applications.
- Four fully featured, time-synchronized, individually galvanically isolated CAN-FD channels utilizing Kvaser CAN-IP implemented in FPGA.
- WiFi6 and Gigabit Ethernet Interface enables remote connectivity.
- Ruggedized housing with IP67 ingress protection.
- Wired interfaces for durable flexible connections.
- Integrated positioning and inertial measurement units.
- Galvanic Isolated GPIO interfaces enables trigger-based logging.
- Separate galvanic isolated power supply with support of activiation by ignition signal.
- High-capacity battery ensures safe shutdown and supports intermediate operation.
- Multi-GNSS (Global Navigation Satellite System) support (GPS, Galileo, GLONASS) for enhanced positioning accuracy and reliability.

3 Safety Instructions

3.1 Intended Use

The Kvaser Edge 4xCAN, Type WL400S is a laboratory equipment used to connect a computer system to CAN buses. It is intended for connection to a computer via the USB port, Ethernet port or via WiFi.

3.2 Usage Warning

CAUTION: THE SURFACE OF THIS DEVICE MAY BECOME HOT IF IT IS EXPOSED TO FOR EXAMPLE RADIATION FROM THE SUN.

WARNING FOR ALL USERS

WARNING! - YOUR USE OF THIS DEVICE MUST BE DONE WITH CAUTION AND A FULL UNDERSTANDING OF THE RISKS!
THIS WARNING IS PRESENTED TO INFORM YOU THAT THE OPERATION OF THIS DEVICE MAY BE DANGEROUS. YOUR ACTIONS CAN INFLUENCE THE BEHAVIOR OF A CAN-BASED DISTRIBUTED EMBEDDED SYSTEM, AND DEPENDING ON THE APPLICATION, THE CONSEQUENCES OF YOUR IMPROPER ACTIONS COULD CAUSE SERIOUS OPERATIONAL MALFUNCTION, LOSS OF INFORMATION, DAMAGE TO EQUIPMENT, AND PHYSICAL INJURY TO YOURSELF AND OTHERS. A POTENTIALLY HAZARDOUS OPERATING CONDITION IS PRESENT WHEN THE FOLLOWING TWO CONDITIONS ARE CONCURRENTLY TRUE: THE PRODUCT IS PHYSICALLY INTERCONNECTED TO A REAL DISTRIBUTED EMBEDDED SYSTEM; AND THE FUNCTIONS AND OPERATIONS OF THE REAL DISTRIBUTED EMBEDDED SYSTEM ARE CONTROLLABLE OR INFLUENCED BY THE USE OF THE CAN NETWORK. A POTENTIALLY HAZARDOUS OPERATING CONDITION MAY RESULT FROM THE ACTIVITY OR NON-ACTIVITY OF SOME DISTRIBUTED EMBEDDED SYSTEM FUNCTIONS AND OPERATIONS, WHICH MAY RESULT IN SERIOUS PHYSICAL HARM OR DEATH OR CAUSE DAMAGE TO EQUIPMENT, DEVICES, OR THE SURROUNDING ENVIRONMENT.
WITH THIS DEVICE, YOU MAY POTENTIALLY:

- CAUSE A CHANGE IN THE OPERATION OF THE SYSTEM, MODULE, DEVICE, CIRCUIT, OR OUTPUT.
- TURN ON OR ACTIVATE A MODULE, DEVICE, CIRCUIT, OUTPUT, OR FUNCTION.
- TURN OFF OR DEACTIVATE A MODULE, DEVICE, CIRCUIT, OUTPUT, OR FUNCTION.
- INHIBIT, TURN OFF, OR DEACTIVATE NORMAL OPERATION.
- MODIFY THE BEHAVIOR OF A DISTRIBUTED PRODUCT.
- ACTIVATE AN UNINTENDED OPERATION.
- PLACE THE SYSTEM, MODULE, DEVICE, CIRCUIT, OR OUTPUT INTO AN UNINTENDED MODE.

ONLY THOSE PERSONS WHO:
(A) ARE PROPERLY TRAINED AND QUALIFIED WITH RESPECT TO THE USE OF THE DEVICE,
(B) UNDERSTAND THE WARNINGS ABOVE, AND
(C) UNDERSTAND HOW THIS DEVICE INTERACTS WITH AND IMPACTS THE FUNCTION AND SAFETY OF OTHER PRODUCTS IN A DISTRIBUTED SYSTEM AND THE APPLICATION FOR WHICH THIS DEVICE WILL BE APPLIED, MAY USE THE DEVICE.
PLEASE NOTE THAT YOU CAN INTEGRATE THIS PRODUCT AS A SUBSYSTEM INTO HIGHER-LEVEL SYSTEMS. IN CASE YOU DO SO, KVASER AB HEREBY DECLARES THAT KVASER AB'S WARRANTY SHALL BE LIMITED TO THE CORRECTION OF DEFECTS, AND KVASER AB HEREBY EXPRESSLY DISCLAIMS ANY LIABILITY OVER AND ABOVE THE REFUNDING OF THE PRICE PAID FOR THIS DEVICE, SINCE KVASER AB DOES NOT HAVE ANY INFLUENCE ON THE IMPLEMENTATIONS OF THE HIGHER-LEVEL SYSTEM, WHICH MAY BE DEFECTIVE.

THIS PRODUCT CONTAINS A RECHARGEABLE LI-ION BATTERY THAT MUST BE DISPOSED OF PROPERLY. IT MAY EXPLODE IF DAMAGED OR DISPOSED OF IN FIRE. DO NOT SHORT CIRCUIT.

THE OPERATING TEMPERATURE IS SET BY THE PRIMARY INTENDED USE CASE, AS LABORATORY EQUIPMENT WHERE THE OPERATING MODE CAN BE HANDHELD THE OPERATING TEMPERATURE IS –40 °C TO 50 °C AMBIENT. IF HANDHELD USE CAN BE EXCLUDED, THE HIGHER OPERATING TEMPERATURE CAN BE UP TO 70 °C.

4 Kvaser Edge 4xCAN, Type WL400S hardware

In this section you can read more about the technical specifications of Kvaser Edge 4xCAN, Type WL400S.

4.1 Technical data

In Table 1 below you will find the Kvaser Edge 4xCAN, Type WL400S's technical specifications.

Battery	Lithium-ion 18650
Bluetooth	Supporting mode BLE 5.3
CAN	4xCAN FD SIC Galvanic Isolated, HD26
CAN FD bitrate	Up to 8 Mbit/s
Ethernet	1x Gigabit Ethernet 1000BASE-T, RJ45 Socket
GPIO	2x Digital Input 1x Digital Output
Housing	Aluminum housing with plastic protective caps, approx. 200x110x58 mm
IMU *Acceleration sensitivity* *Angular rate sensitivity*	6-axis (accelerometer + gyroscope) *+-2g range 0.061 mg/LSB (Typical)* *+-125 dps range 4.375 mdps/LSB (Typical)*
Ingress Protection: Housing	IP67
Operating temperature	−40 °C to 50 °C ambient. (If handheld use is not a requirement, the device can operate at ambient temperatures up to 70 °C.)
Operating system	Linux - Kernel
Positioning	Multi-GNSS (GPS, Galileo, GLONASS) with external active antenna via FAKRA connector (Key Code-C)
Power activiation	Galvanic Isolated
Power consumption	Up to 15 W in active mode. Standby mode, down to 200mW
Power Supply	9 - 36 V, DC Galvanic Isolated
Processor	ARM, Multicore processing Quad Cortex®-A53 up to 1.6 GHz
RAM	2 GB DDR
Regulatory Compliance	CE, FCC
Status display	8 Multicolor and user configurable LEDs, 1 Power LED and 2 user defined buttons
Storage	256 GB eMMC (embedded MultiMediaCard)
USB	USB 3.1 Device/Host, Type-C (PD 400 mA)
Weight	850 g, cables excluded
WiFi	WiFi6 IEEE 802.11ax, Dual band, 2x2 MIMO (5GHz), Antenna Diversity, Integrated antennas

Table 1: Technical Specifications.

5 CAN Connectors

Kvaser Edge 4xCAN, Type WL400S has a 26-pin HD D-SUB connector with four CAN channels. A Cable Splitter Edge 1-4 can be used to connect to the four separate 9-pin D-SUB connectors representing each CAN channel and a fifth 9-pin D-SUB connector for power supply and trigger handling.

The pinouts for the 26-pin HD D-SUB connector are shown in Figure 1 and the pinout functions are described in Table 2.

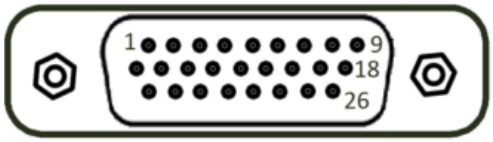

Figure 1: HD 26-pin D-SUB pinout.

HD D-SUB	Function
19	EXT_GND
1	TRIG IN 1
11	TRIG IN 2
6	TRIG OUT
8	ACTIVATION
10	EXT_POW
20	GND 1
2	CANL 1
12	CANH 1
21	GND 2
3	CANL 2
13	CANH 2
22	GND 3
4	CANL 3
14	CANH 3
23	GND 4
5	CANL 4
15	CANH 4
16	RESERVED
Shell	SHIELD

Table 2: Pin configuration of the 26-pin HD D-SUB

6 Disposal and Recycling Information

When this product reaches its end of life, please dispose of it according to your local environmental laws and guidelines.

Dispose of batteries according to your local environmental laws and guidelines.

For information about Kvaser's recycling programs, visit:
https://www.kvaser.com/en/kvaser/recycling-policy.html

7 Legal acknowledgements

7.1 EU Regulatory Compliance

KVASER **EU Declaration of Conformity (DoC)**

We

Company Name:	Kvaser AB	City:	Mölndal
Postal address:	Aminogatan 25	Telephone number:	+46 31 886344
Postcode:	431 53	E-mail address:	sales@kvaser.com

declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product: Kvaser Edge 4xCAN, Type WL400S

Object of the declaration (identification of apparatus allowing traceability):
Product: Kvaser Edge 4xCAN, Type WL400S
Type: 73-30130-01688-0

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:
Radio Equipment Directive (RED) 2014/53/EU (Art. 3.1a, 3.1b and 3.2)

RoHS recast Directive 2011/65/EU (Art. 4.1)

The following harmonised standards and technical specifications have been applied
(title, date of standard/specification):

EN 301 489-19 (2022-09 (2.2.1))

EN 300 328 (2019-07 (2.2.2))

EN 301 489-1 (2019-11 (2.2.3))

EN 301 489-17 (2024-09 (3.3.1))

EN 55035 (2017 + A11:2020)

EN 61010-1 (2010 + A1:2019)

EN IEC 63000 (2018)

Signed for and on behalf of:

Mölndal	2025-06-16	
Place of issue	Date of issue	Kent Lennartsson, Research Manager

7.2 FCC Regulatory Compliance

KVASER

Federal Communications Commission (FCC) Compliance Information Statement

IDENTIFICATION OBJECT:
Product: Kvaser Edge 4xCAN, Type WL400S
Type: 73-30130-01688-0

APPLICABLE COMPLIANCE STATEMENTS:
CFR Title 47 Part 15 §15.107, §15.109
This device complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.

RESPONSIBLE PARTY (IN USA) NAME:
Kvaser Inc.
23881 Via Fabricante, Suite 503
Mission Viejo, CA 92691

Internet contact: support@kvaser.com

7.3 Patents, Copyrights and Trademarks

All trademarks are the property of their respective owner. Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Adobe, the Adobe logo, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

DeviceNet is a trademark of Open DeviceNet Vendor Association, Inc.

NMEA 2000 is the registered trademark of the National Marine Electronics Association, Inc.

For information about Kvaser related CAN patents, see www.kvaser.com/patent.

The products described in this document are protected by U.S. patent 5,696,911.

8 Document Revision History

Version history for document UG_98406_kvaser_edge_4xcan_type-wl400s:

Revision	Date	Changes
1.0	2025-09-22	Initial version.
1.1	2026-02-05	Move Safety Instructions section. Minor text changes.