Influx TECHNOLOGY

User Guide

ReXgen 2- Manual

Influx ReXgen 2

ABOUT THIS MANUAL

This document provides a brief idea of the usage, safety precautions, installation procedures and operation of the Influx ReXgen2. This document is intended for professional engineers and academic researchers, allowing them to understand the concept of operating the device and to integrate this knowledge into systems with components of other manufacturers.

DISCLAIMER

Translation of the original Product Manual ReXgen2.

Version	Date	Remarks
1.0	21-10-2020	First official version
1.1	02-02-2021	Minor Changes
1.2	20-04-2021	Added Certifications
1.3	16-09-2022	Added Pass-thru features

Table 1: Version Details

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SAFETY INSTRUCTIONS

- Always ensure that the device is installed, connected, and commissioned by a qualified professional by following all safety norms.
- Disconnect the device completely before handling it and disconnect any independently supplied output load circuits.
- Do not connect the housing to the Ground externally. This will suspend the reverse voltage protection of the power supply. Applying a reverse voltage, in this case, will destroy the supply circuits.
- Provide all the device connectors with plugs and any protection caps required to ensure protection class IP65.
- Never immerse the device in water or other liquids.
- The device must only be repaired by the manufacturer.
- Keep substances that contain solvents away from the type label.

The following formatting and symbols will help you recognise the purpose of each paragraph:

WARNING

Severe injury or death. Probability: Possible

CAUTION ⚠

Slight or medium injury. Probability: Possible

ATTENTION! ⚠

Property damage

Notes

• Important usage instructions/notes/limits.

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1. OVERVIEW OF THE DEVICE

This chapter overviews the device, its operating elements and functions, and its intended use.

RE liable ne X t GEN eration

data computing

Along with the free, user-friendly configuration software, the standalone ReXgen2 logger comes with the following advantages:

- Extreme level of compactness – pocket size
- Tolerable to harsh environments with an IP65 rating
- Secure data storage with an internal eMMC
- Supports CAN, CAN FD & LIN buses.
- Functions as an interface device and supports J2534 (Pass-thru).
- Supports CAN monitoring RAW CAN signals, SAE J1939
- Sleep modes with wake up on CAN & wake up on movement
- Most advanced trigger & filter conditions
- In-built gyroscope & accelerometer modules
- 2 x digital & 2 analog inputs
- Up to 18 Hz rate GNSS module
- Micro USB 2.0 PC interface
- Internal temperature sensor
- CAN error logging

Available Models

Model	eMMC Storage	CAN/CAN FD	Analog I/P	Accelerometer & Gyroscope	GNSS
INF2110	8 GB	2	2	No	No
INF2111	16 GB	2	2	No	No
INF2112	32 GB	2	2	Yes	Yes
INF2113	32 GB	2	2	Yes	Yes (Dead Reckoning)

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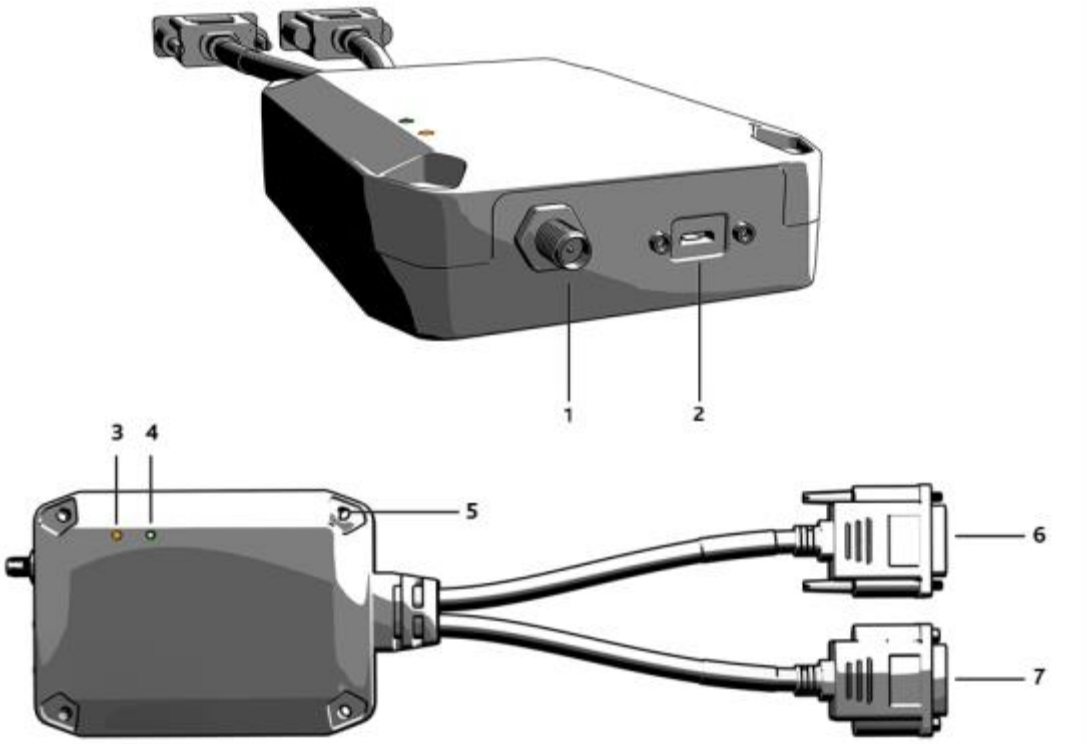
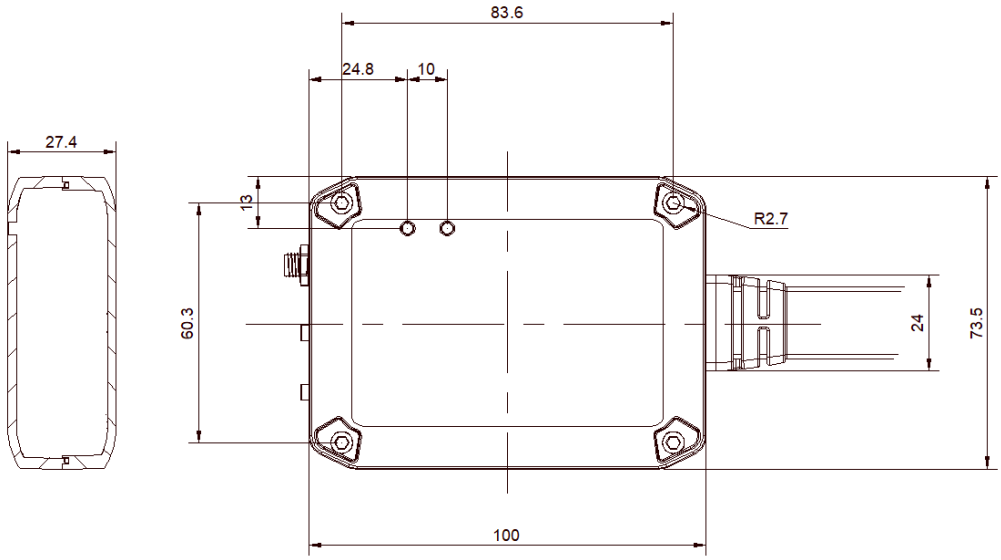
1.1 GENERAL INFORMATION

1.1.1 DEVICE ELEMENTS



1 – External GNSS antenna connector.	5 – Mounting Holes.
2 – Micro USB connector.	6 – Channel 1 Connector.
3 – Channel 1 LED.	7 – Channel 0 Connector.
4 – Channel 0 LED.	

1.1.2 PRODUCT DRAWINGS



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1.1.3 TECHNICAL SPECIFICATION

Functions	ReXgen 2	ReXgen 2 IMU
CAN Interfaces	2 x CAN/CAN FD ISO 11898-1: Compliant with CAN (up to 1 Mbit/s) ISO & Bosch CAN FD (up to 8 Mbit/s) Conforms to CAN protocol version 2.0 - part A, B Max 20000 mps Meets the requirements of ISO 11898-2:2016 & ISO 11898-5:2007 physical layer standards	
CAN/CAN FD Functions	Supports custom baud rates CAN/CAN FD Bit timing selection SAE J1939 support (Source Address, Destination Address & PGN Filters) Silent Mode Configurable CAN DBC Support CAN frame error detection	
LIN Interface	1 x LIN (up to 20 K Baud with LIN-Compatible Output Driver)	
Inputs	2 x Digital and 2 x Analog (max sampling rate-1KHz)	
	Positioning & IMU Sensors	
GNSS	NA	Up to 18 Hz rate
GNSS Receiver Type	NA	72-channel, GNSS L1C/A, SBAS L1C/A, QZSS L1C/A, QZSS L1-SAIF, GLONASS L1OF, BeiDou B1I , Galileo E1B/C
Position Accuracy	NA	2.0 m CEP*
Acquisition	NA	Cold starts: 26s Reacquisition: 2 s
Antenna	NA	External
Accuracy	NA	Velocity: 0.05m/s
		Heading: 0.3 degrees
		Altitude: not specified
Accelerometer	NA	±2/±4/±8/±16 g full scale (max sampling rate-1KHz)
Gyroscope	NA	±125/±250/±500/±1000/±2000 dps full scale (max sampling rate-1KHz)
PC Interfaces	Rugged Micro USB 2.0 (Datalogger mode and J2534)	
Data Storage Capability	8 or 16 GB Inbuilt eMMC storage	32 GB Inbuilt eMMC storage
Supported Protocols	CAN Monitoring (RAW CAN signals, SAE J1939 support)	
LEDs	2	
Triggering	Trigger on CAN ID, CAN Signal, and Digital Input. Trigger on DM1 counter.	

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Data Storage Format	FAT32, Log files accessible via ReXdesk Software
File Format Supported	ASAM MDF (.mf4), CSV, MATLAB, ASC, BLF
Data Logger Configuration	Supplied with Influx ReXdesk configuration software, XML based
	Analog Input
Number of channels	2 x Bipolar single-ended inputs
Range	+/- 10 V
Resolution (ADC)	12 Bit
Max sampling rate	1 kHz
Input Impedance	> 50 K Ohms
Safe Applied Voltage	+/- 28 V
	Digital Input
Number of channels	2 x Unipolar single-ended inputs
Input Switching Thresholds	Low < 0.8 V, High > 2.5 V (up to 28V)
Safe Applied Voltage	+/- 28 V

1.1.4 ELECTRICAL DATA

BUS & Signals	Operating Voltage
Power supply - OBD	+4.5 to +31V
Power supply - USB	+4.5 to +5.5V
CAN FD	+2 to +3V
LIN	0 to +24V
Digital Input	0 to +28V
Analog input	+/- 10V

Function	Description
Transceiver Protection	Bus fault protection: ±58 V Thermal-shutdown protection (TSD) Under-voltage protection
Enclosure	PC+ ABS
IP Rating	IP65
Dimension	L - 100 mm, W - 73.5 mm, H – 27.4 mm
Weight	164 gms
Mounting Holes	4 mounting holes and screws
Stackable	Yes
Environmental Tolerance	**Working temperature** -40degC to +85degC; **Humidity** max 90%
Power Saving	Wake Up On CAN, Power Down Mode, Sleep Modes
Power Consumption	Normal Operation: 87 mA at 12 V Power Down Mode: <2 mA

* *CEP* - circular error probable

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1.1.5 INTENDED USE

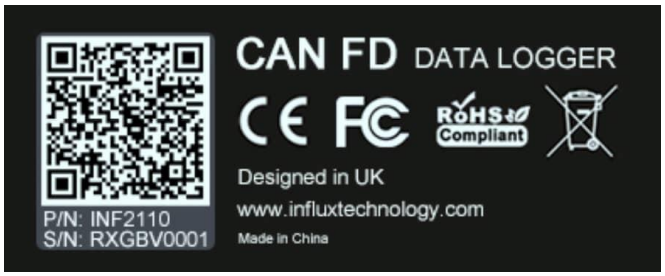
The ReXgen2 is one of the most compact, pocket-sized data loggers suitable for automotive and various industrial applications. The device is designed to log data continuously for hours from a CAN bus and simultaneously save it to the embedded SD memory card. The device is tolerable in all harsh environments requiring IP65 class protection. It can be easily mounted and integrated with your vehicle /machine.

1.1.6 LIABILITY & WARRANTY

Influx Technology assumes no liability for damages caused by normal wear, installation errors, or operating or maintenance faults. Applicable also when the user modifies the devices, any accessories, or the Software without the prior approval of Influx Technology.

1.1.7 CONFORMITY

For detailed information on the respective tests, see Chapter Certifications.



The device meets the following standards and legal requirements:

Compliance with CE

This device complies with the directives, standards and normative documents listed in chapter Certifications.

Compliance with FCC

This device complies with the directives, standards and normative documents listed in chapter Certifications.

Compliance with ROHS

This device complies with the directives, standards and normative documents listed in chapter Certifications.

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1.2 DEVICE KIT

1.2.1 HARDWARE

Packaging will contain the following components:

INF 2110/INF 2111

- 1x Rexgen2 with integrated cable
- 1x Micro USB

INF 2112/INF 2113

- 1x Rexgen2 with integrated cable
- 1x Micro USB
- 1x GNSS Antenna with 5M long cable

1.2.2 SOFTWARE

ReXgen2 device will be supplied with a freely distributed configuration and data retrieval software, ReXdesk.

The Software can be downloaded from our website, www.influxtechnology.com.

1.3 SERVICE & SUPPORT

Please visit the support section on our website www.influxtechnology.com.

The latest versions of the drivers, Software, firmware, and documentations are available on our website.

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2. HARDWARE & FUNCTIONALITY

In this chapter, you will find Information on the device functionality and hardware.

2.1 FUNCTIONS

FUNCTION	ReXgen2 (INF 2110/1)	ReXgen2 IMU (INF 2112/3)
CAN/CAN FD Data Logging	Yes	Yes
Digital and Analog Input	Yes	Yes
LIN Data Logging	Yes	Yes
GNSS Data Logging	-	Yes
Accelerometer and Gyroscope Logging	-	Yes

Table 1: Device Functions

2.1.1 RECORDING CAN/CAN FD DATA

The device can effectively log data on field tests and a bench via CAN/CAN FD interfaces. The device supports all standard CAN/CAN FD baud rates. ReXdesk software allows users to configure ReXgen2 with custom baud rates and modify advanced bit timings. ReXdesk also allows the user to configure ReXgen2 with CAN & J1939 filters. All logged data is saved to the secure embedded memory. The user can configure triggers based on CAN IDs, parameter values & J1939 DM1 messages to start or stop logging.

2.1.2 RECORDING LIN DATA

The device can be effectively used to log data on field tests and bench via LIN interfaces. All logged data is saved to the embedded SD memory card.

2.1.3 RECORDING GNSS DATA

The device consists of an internal GNSS module and an external active antenna with a supply voltage of 3V. This receiver can evaluate signals from the GNSS/QZSS, GLONASS, BeiDou and Galileo satellites. GNNS data can be logged at sampling rates up to 18HZ.
*Applicable only for ReXgen2 IMU version

2.1.4 RECORDING ACCELEROMETER & GYROSCOPE DATA

The device consists of an internal accelerometer and gyroscope module. Acceleration output data rate is up to 6664 Hz with a vibration rate of ±2/±4/±8/±16 g at full scale. The angular output data rate of the gyroscope is up to 1666 Hz with ±125/±250/±500/±1000/±2000 dps at full scale.
*Applicable only for ReXgen2 IMU version

2.1.5 DIGITAL & ANALOG INPUT FUNCTIONS

The input function can be used, for instance, to log status information from devices, machines, and sensors to determine and monitor switch and key states directly. You can

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record the data determined from the input functions, and it can be used for creating triggers for starting and stopping logging.

2.2 HARDWARE

2.2.1 INSTALLATION

The contents below specify the conditions to be ensured for the operation of ReXgen2.

GROUNDING

Since it is not required to provide a common ground between nodes, it is possible to have ground offsets between nodes. Each node may observe different single-ended bus voltages (common mode bus voltages) while maintaining the same differential voltage. Operating a CAN system with large ground offsets can lead to increased electromagnetic emissions. Steps must be taken to eliminate ground offsets if the system is sensitive to emissions.

TERMINATION

ISO-11898 requires that the CAN bus have a nominal characteristic line impedance of 120Ω. Therefore, the typical terminating resistor value for each end of the bus is 120Ω. Bus termination is used to minimise signal reflection on the bus.

SUPPLY VOLTAGE

It is always recommended to keep the nominal voltage within the specified rate. The device is also internally protected against low energy voltage events due to supply wire noise.

ISOLATION

CAN Bus and USB are not isolated; care must be taken when plugging the USB into the device. Removing the power supply when the device is interfaced to a PC via USB is advised.

WARNING ⚠

Notes

- CAN Bus and USB Isolators can be purchased seperately.

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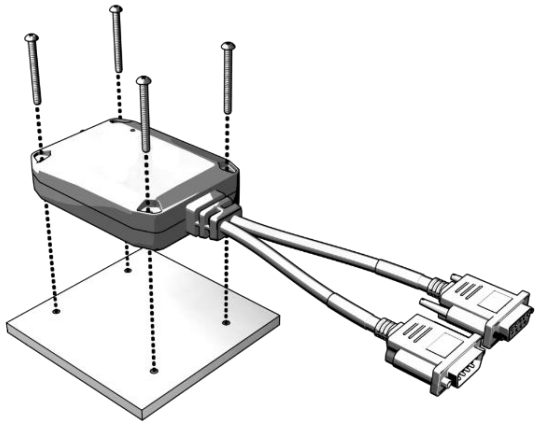
MOUNTING

WARNING ⚠

Always mount the device in a way that minimises vibration exposure and accounts for the IP rating of the device. ReXgen2 is supplied with four screws to assist you with the mounting process.



ANTENNA

An external active antenna with a supply voltage of 3V is required for GNSS data logging. Ensure that the antenna is connected correctly at all times and that it is not loose when the ReXgen2 is powered on. Operation with a loose antenna or without the antenna entirely can lead to GNSS data loss.

2.2.2 ENCLOSURE

WARNING ⚠

The device is not intended for use without the enclosure.

2.2.3 CABLES

ReXgen2 comes with integrated cables with a 9-pin D-Type connector. ReXgen2 is also available with Rugged Automotive specification connectors, made per bulk orders request. The device will be supplied with a micro-USB cable and a GNSS antenna with an integrated 5M cable (INF2112/2113).

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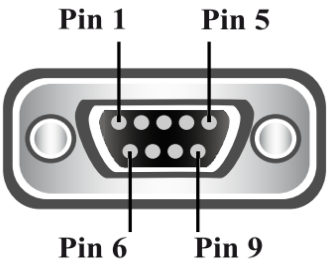
2.2.3.1 CONNECTOR PIN DETAILS

There are two connectors, a male and female 9-pin Standard D-Type connector.

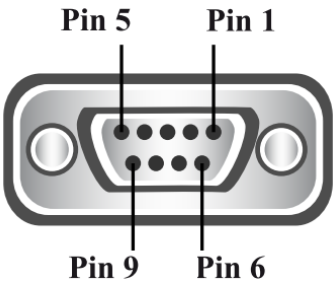
Channel 0 Connector

PIN No DB9(Male with Nuts)	PIN Function PWR/CAN0/Digital/LIN
Pin 1	Digital 1
Pin 2	CAN/CAN FD 0 - Low
Pin 3	GND
Pin 4	LIN
Pin 5	Power GND
Pin 6	Digital 0
Pin 7	CAN/CAN FD 0 - High
Pin 9	Power Supply 5-31V



Channel 1 Connector

PIN No DB9(Female with Screws)	PIN Function CAN1/Clamp/Analog
Pin 1	GND A
Pin 2	CAN/CAN FD 1-Low
Pin 3	GND
Pin 4	Analog IN 0
Pin 5	GND A
Pin 6	Analog IN 1
Pin 7	CAN/CAN FD 1-High
Pin 8	Clamp-15



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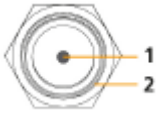
Notes

- Connector needs to be tightened properly to make a proper connection, ensuring reliable operation.
- Each end of the CAN/CAN FD bus must be terminated with a 120 Ohm resistor across CAN H & CAN L.
- Do not short circuit any pins.
- Maximum safe applied voltage for analog and digital I/P is +/- 28 V.

2.2.3.2 GNSS ANTENNA CONNECTOR

ReXgen2 uses an SMA female connector for the GNSS antenna.

PIN No	PIN Function
Pin 1	Signal
Pin 2	GND



2.2.4 INDICATOR ELEMENTS – LED'S

2 LEDs are installed on the ReXgen2 device to indicate the CAN/CAN FD logging activity.

LED 1 - Channel 0 - Green

LED 2 - Channel 1 – Amber

LED Patterns	Description
	Blinking – Logging
	Bold – Not logging, Configuration active.
	LED 1 and LED 2 **flashing alternatively** – Re-flashing in progress

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2.2.5 ACCESSORIES

Accessory	Part Number	Description
USB Isolator	INF4311	External isolator for the USB.
CAN Terminator	INF4310	120 Ohms D Sub 9 CAN Terminator.
OBD II TYPE-B Cable to 9-way D-Sub	INF4103	Cable for connecting to vehicle OBD port.
Multi power supply & CAN cable	INF4206	This cable uses the vehicle auxiliary power outlet or banana plugs (battery) for the power supply.

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3. GETTING STARTED

3.1 CONNECTING THE DEVICE

ATTENTION! ⚠

- A qualified technician must install, connect, and commission the device.
- Ensure the power supply is disconnected before connecting the device.
- Only use components from the starter kits, or the accessories supplied.

3.1.1 POWER

Power supply to the product is given using connector A, the male, 9-pin standard D-type connector.

Notes

- Connector needs to be tightened properly to make a proper connection, ensuring reliable operation.
- Do not short circuit any pins.
- Maximum safe applied voltage is +34V

3.1.2 CAN / CAN FD

ReXgen2 can be interfaced to the CAN/CAN FD bus, from which data will be logged using D-Sub 9 connector A or connector B. The CAN-high and CAN-low from the vehicle or machine terminals must match the CAN-high and CAN-low terminal of the ReXgen2. ReXgen2 should be configured with the same baud rate as the device to which it is interfaced.

Notes

- Connector needs to be tightened properly to make a proper connection, ensuring reliable operation.
- Each end of the CAN/CAN FD bus must be terminated with a 120 Ohm resistor accros CAN H & CAN L.
- Do not short circuit any pins.
- Maximum safe applied voltage is +28V.
- CAN/CAN FD bus is not isolated by default; isolating device can be purchased seperately.

3.1.3 ANALOG & DIGITAL INPUT

ReXgen2 supports 2 analog inputs in (the range of) +/- 10 V. The 2 analog inputs are interfaced to the ReXgen2 via a D-Sub 9 connector B. ReXgen2 also supports two digital inputs. The digital inputs are interfaced to the ReXgen2 via a D-Sub 9 connector A.

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Notes

- Connector needs to be tightened properly to make a proper connection,ensuring reliable operation.
- Do not short circuit any pins.
- Maximum safe applied voltage is +28V

3.1.4 USB

For configuration and test purposes, you can connect the device to a PC via the communication gateway USB. The device is supplied with a standard Micro USB cable. Please note that the USB is not isolated, and an isolator can be purchased separately.

3.2 SOFTWARE INSTALLATION

Download the latest version of our ReXdesk Software from the Influx Technology website.

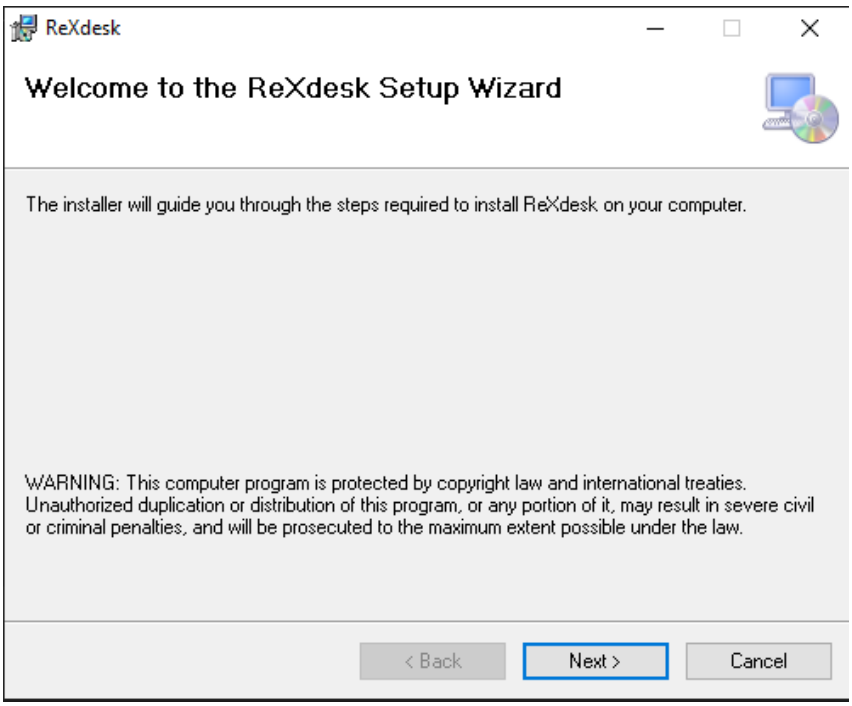
Notes

- Before proceeding with the installation, please ensure that you have acquired administrative privileges.

Make sure you have installed the Microsoft Visual C++ Redistributable.

You can download it from the following link: https://www.microsoft.com/en-us/download/details.aspx?id=48145

To begin the installation of the ReXdesk Software, open the installer by running the set-up file.



- To continue with the installation of ReXdesk on your system, click 'Next'.
- To cancel the installation at this stage, click 'Cancel' (No software will have been installed on the system at this

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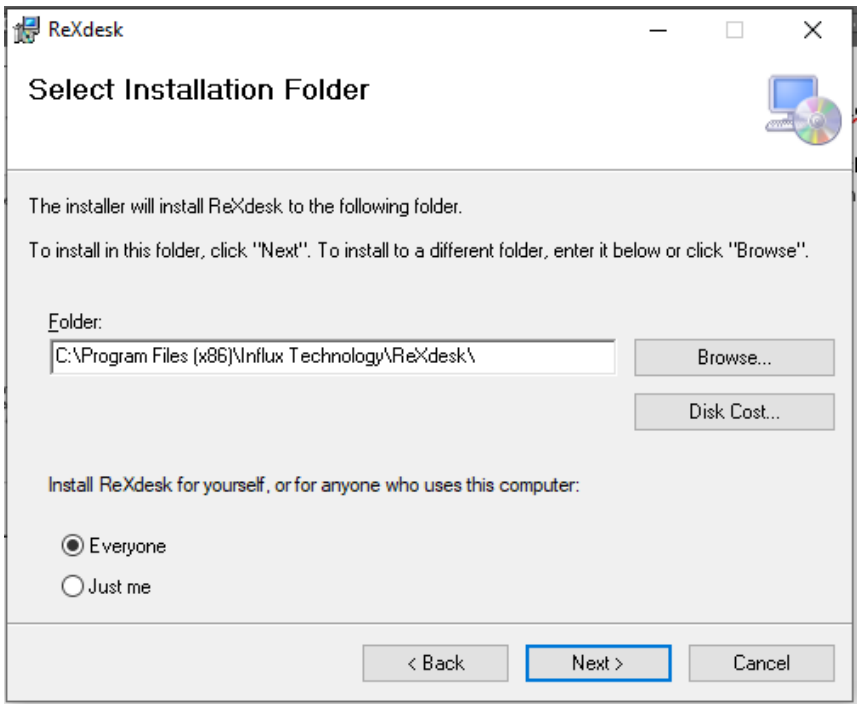
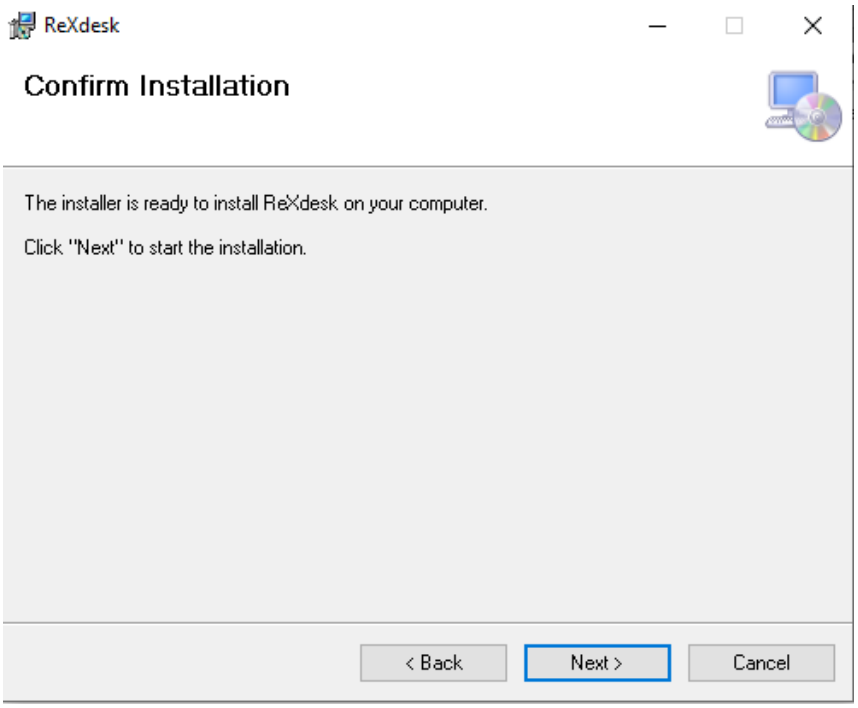
point).



- Select the folder where you wish to install the Software; it is preferred to use the default location.
- Select the preference for computer user installation to determine which computer users will have access to the ReXdesk Software.
- Click 'Next' to continue with the installation



- To continue with the installation of ReXdesk on your system, click 'Next'.

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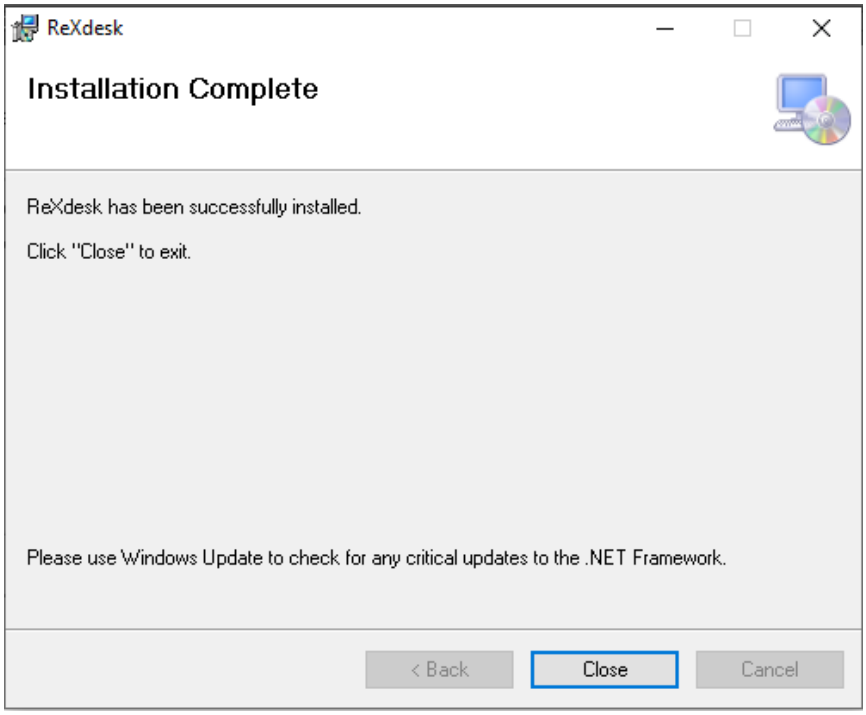

- Once the installation is complete, this window will appear.
- Click 'Close' to close the window.

ReXdesk is now successfully installed on your system.

3.3 DRIVER INSTALLATION

To install the ReXgen2 driver, locate the ReXgen2 Drivers installer from the start menu.

Notes

- Before proceeding with the installation, please ensure that you have acquired administrative privileges.

Run the ReXgenInstaller.exe file.

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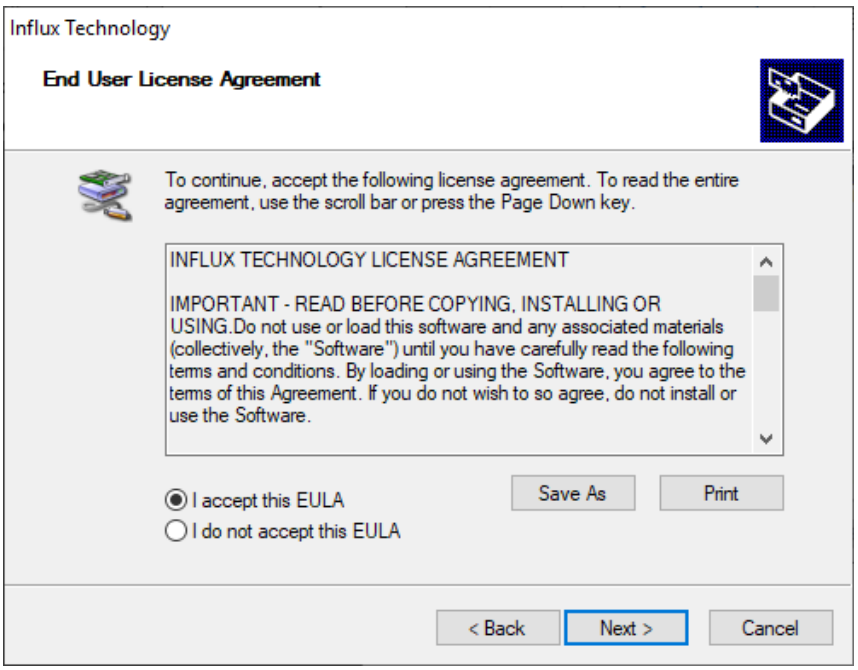
- Click 'Next' to continue installing the ReXgen device driver on your system.
- To cancel the installation at this stage, click 'Cancel'. (No software will have been installed on the system at this point.)



- Please Read the licence agreement carefully.
- Once you understand and accept the licence agreement, please click 'I accept the EULA' to be able to continue with the installation of the driver. If you do not accept the terms, please click 'Cancel' to stop the installation at this point.
- Click 'Next' to continue the installation process.

- Once the installation is complete, this window will appear.
- Click 'Finish' to close the window. The ReXgen2 driver is now successfully installed on your system.

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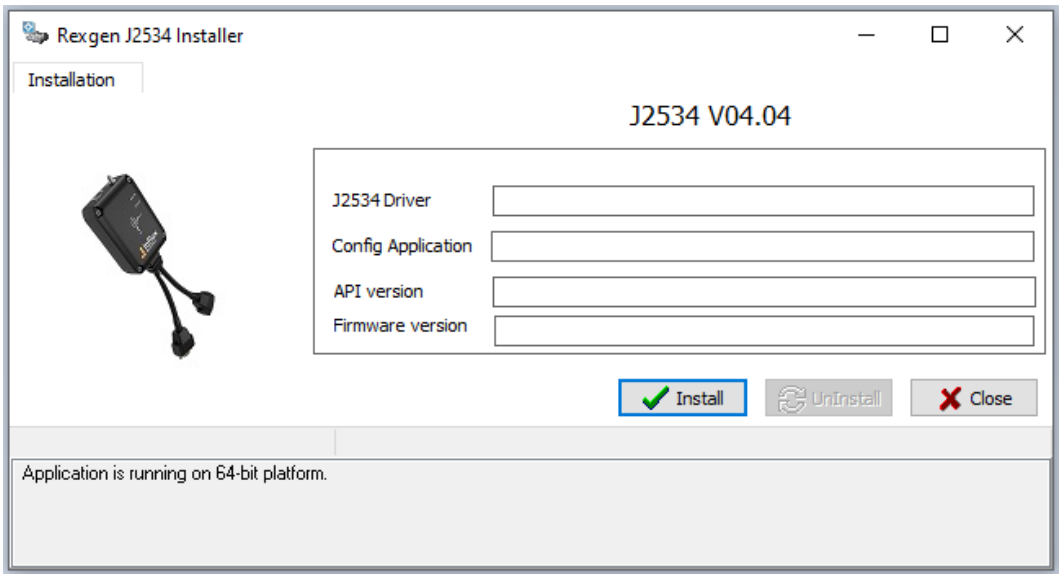
3.4 ReXgen2 as a J2534 tool

- Download the J2534 driver and execute the file.
- Click 'Install.'



After successful installation, Windows Registry should contain J2534 ReXgen properties.

3.5 FIRMWARE UPDATE

All newly released firmware updates will be available on www.influxtechnology.com

Firmware can be updated using the Reflash option in the ReXdesk Software.

Choose the file with prefix firmware628_xx_xx.bin

Notes

- While re-flashing, the LEDs on the device will flash alternatively, do not disconnect or change the power source of the device during this process.
- The device will disconnect from the PC while it is re-flashing. It will automatically reconnect once re-flashing is completed.

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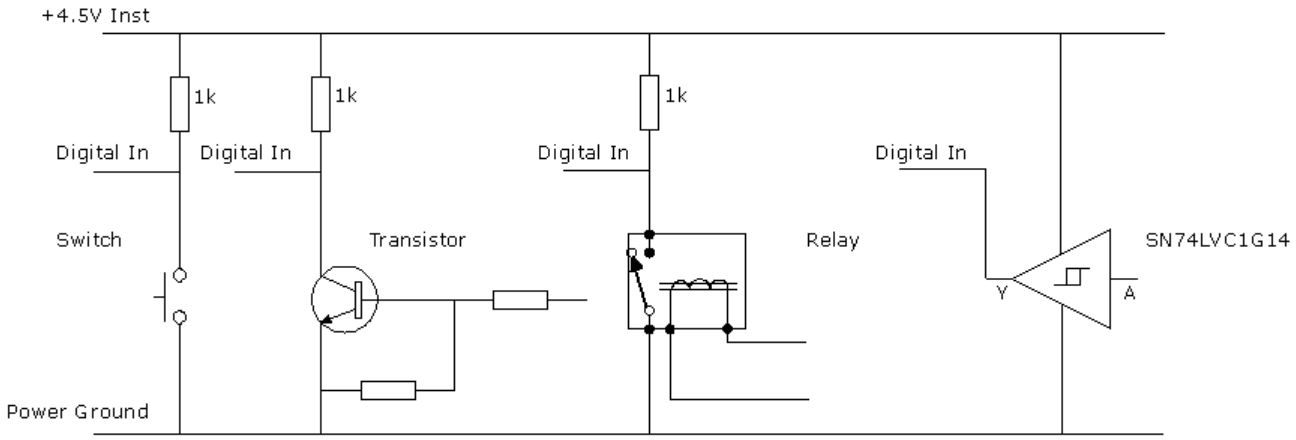
4. ANNEXURES

This chapter contains technical data and certificates.

4.1 DIGITAL INPUT FUNCTION

The Digital Input Output pins will consider voltages below 0.8V to be low and above 2.5V to be high. Below are examples of how you could utilise the I/O pins if configured as inputs.



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4.2 CERTIFICATIONS

FCC

Influx TECHNOLOGY

Office Suite 22, Building 03,
Millbrook Proving Ground,
Station Lane, Millbrook
Bedford, MK45 2JQ, UK
Direct dial: +44(0)1525 842504

DECLARATION OF CONFORMITY
Per FCC Part 2

Responsible Party Name: Influx Technology Ltd

Address: Office Suite 22, Building 03, Millbrook Proving Ground, Bedford, MK45 2JQ, UK
Phone : +44(0)1525 842504

Hereby declares that the products:

Equipment	:	**CAN Bus Data Logger**
Product Name	:	**ReXgen 2**
Type, Model	:	**INF2110.INF2111, INF2112**

Conforms to the following specifications:

FCC Part 15/47 CFR Ch 1 (2021) Conducted Limits
FCC Part 15/47 CFR Ch 1 (2021) Radiated Emission Limits regarding part 15 of the FCC-rules (Class A Digital devices)

This device was FCC marked in 2021 by:

Unit 3 Compliance Ltd
2, Wellington Business Park, New Lane, Bradford, West Yorkshire,
UK , BD4 8AL
U3C Reference: R1330A

Representative Person: Lance Keen (CEO)

Signature:

Date: 15th March :

Company Stamp:

Influx TECHNOLOGY
INFLUX TECHNOLOGY LTD
Office Suite 22, Building 03
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Tel: +44 1525 842504
www.influxtechnology.com
Company No. 3764010

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CE

Office Suite 22, Building 03,
Millbrook Proving Ground,
Station Lane, Millbrook
Bedford, MK45 2JQ, UK
Direct dial: +44(0)1525 842504

CE Declaration of Conformity

We hereby declare that the following product:

Equipment	:	CAN Bus Data Logger
Product Name	:	ReXgen 2
Type, Model	:	INF2110.INF2111, INF2112

is in compliance with the EMC Directive (2014/30/EU) on Electromagnetic Compatibility,

Further we confirm that the device complies with the following standard(s) or normative document(s):

EN 50498:2010 "Electromagnetic compatibility (EMC) - Product family standard for aftermarket electronic equipment in vehicles"

EN 55025:2017 "Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers"

ISO 7637-2:2004 "Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only"

EN 61000-6-3:2007 "Emission standard for residential, commercial and light-industrial environments"

This declaration applies to all identical products of this type in the case of proper use, when installed and operated in accordance with the manufacturers installation and operating instructions.

This device was CE marked in 2021 by:

Unit 3 Compliance Ltd
2, Wellington Business Park, New Lane, Bradford, West Yorkshire,
UK , BD4 8AL

U3C Reference: R1330A

Lance Keen
C.E.O
Influx Technology Ltd

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Company No. 3764010

Millbrook, 17th February 2021
Place and date

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ROHS

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Millbrook Proving Ground,
Station Lane, Millbrook
Bedford, MK45 2JQ, UK
Direct dial: +44(0)1525 842504

RoHS Compliance Statement

Influx Technology Limited ("Company") certifies that Influx ReXgen2 (INF2110, INF2111, INF2112) supplied by Company are in compliance with, and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC and 2011/65/EU (RoHS2). Said products have no intentional addition of:

- Lead (Pb)
- Cadmium (Cd)
- Mercury (Hg)
- Hexavalent Chromium (Cr)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

Any trace impurities of these substances are below the threshold limits as specified by the RoHS directive; specifically, Cr+6, Hg, Pb, PBB, PBDE do not exceed 1000 ppm (0.1%) and Cd does not exceed 100 ppm (0.01%).

This declaration is based on our analysis, vendor supplied analysis, material certifications, or laboratory tests of the component materials used in the manufacturing of our products. Company believes to the best of its knowledge that the above statements are accurate as of the date of this certification and the statements and certifications of suppliers or service providers that Company may have relied upon in the preparation of this statement. Within the above defined limitations this certificate may be relied upon by the distributors and customers of RoHS designated products of Company. This certification is valid unless superseded by a revised certification at a later date.

Lance Keen
C.E.O
Influx Technology Ltd

Millbrook, 17th February 2021
Place and date

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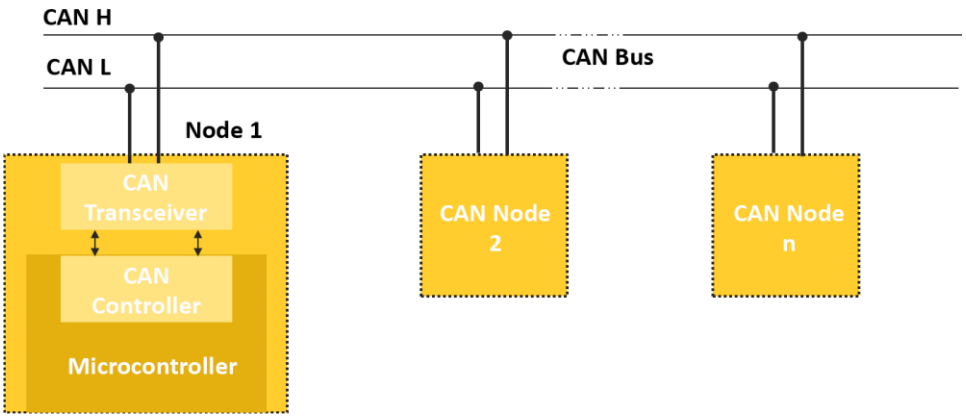
4.3 CAN OVERVIEW

CAN stands for "Controller Area Network" and is defined in the ISO 11898 specification.



The Controller Area Network (CAN, also known as CAN Bus) is a vehicle bus standard designed to allow electronic control units and devices to communicate in applications without a host computer. As an alternative to conventional multi-wire looms, the CAN Bus allows various electronic components (such as electronic control units, micro-controllers, devices, sensors, actuators and other electronic components throughout the vehicle) to communicate on a single or dual-wire network data bus up to 1 Mbit/s.

CAN BUS COMPONENTS

CAN Controller receives the transfer data from the microcomputer integrated into the control unit/device (also known as CAN Node). The CAN controller processes this data and relays it to the CAN transceiver. Also, the CAN controller receives data from the CAN transceiver, processes it and relays it to the microcomputer integrated into the control unit/device (CAN Node).

CAN Transceiver is a transmitter and receiver in one. It converts the data that the CAN controller supplies into electrical signals and sends this data over the data bus lines. Also, it receives data and converts this data for the CAN controller.

CAN Data Bus Termination is a resistor (R) typically of 120 ohms. It prevents data sent from being reflected at the ends and returning as an echo and Ensures that the bus gets correct DC levels.

MAXIMUM BUS SPEED & CABLE LENGTH

The CAN bus uses inexpensive twisted pair wires to send data. All the nodes are connected to the same line (bus) with small branch lines. The signals on the two CAN lines have the same data sequence, but their amplitudes are opposite. So, if a pulse on the CAN-H line goes from 2.5V to 3.75V, then the corresponding pulse on the CAN-L line goes from 2.5V to 1.25V (opposite to CAN-H).

According to the standard, the maximum speed of a CAN bus is 1 Mbit/second. At a speed of 1 Mbit/s, a maximum cable length of about 40 meters (130 ft.) can be used. This is because the arbitration scheme requires that the wavefront of the signal can propagate to the most remote node and back again before the bit is sampled.

- The maximum speed achievable is 1Mbps.

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- The maximum length achievable is 500 metres at a lower speed of 125 Kbps.
- The bus should be terminated at both ends with 120-ohm resistance.
- Removal of one node will not affect the communication in the bus.

CAN Baudrate	Maximum Bus Length
1 Mbits/s	25 m
500 kbit/s	100 m
250 kbit/s	250 m
125 kbit/s	500 m

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