



CAN-LIN Gateway ECU

The CAN-LIN Gateway ECU is an electronic control unit that features up to two CAN/CAN FD channels, a LIN channel, and several multi-purpose digital/analogue inputs and outputs.

The control unit is fully configurable and can be used as a stand-alone data converter between a CAN/CAN FD network and a LIN bus, or as a remote I/O module to interface sensors and actuators to CAN and LIN systems. The ECU supports both SAE J1939 and raw CAN protocols, and is suitable for mobile and stationary applications in harsh automotive and industrial environments.

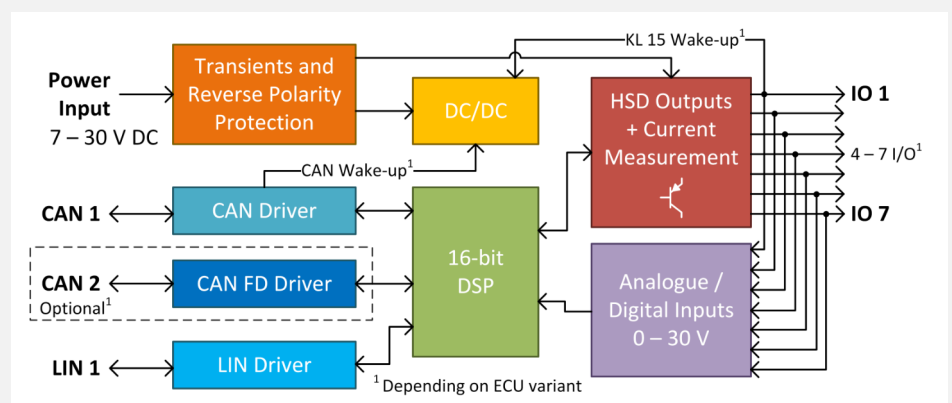
FEATURES

- Data conversion between CAN, CAN FD and LIN buses
- One CAN channel
- One optional CAN FD channel
- One LIN channel
- SAE J1939 support
- Configurable frame and data routing between channels
- Up to seven multi-purpose inputs and outputs with current measurement
- Configurable I/O mapping onto CAN or LIN frame data
- PC tool for easy configuration
- Waterproof automotive-grade ECU
- Suitable for 12 V and 24 V systems
- ECE-R10 (E1) approval
- Customisation on request



USAGE EXAMPLES

- CAN - LIN bridge
- CAN - CAN FD gateway
- Remote I/O ECU
- Universal SAE J1939 ECU





TECHNICAL SPECIFICATION

Communication Channels

CAN	CAN 2.0B (speeds: 125 / 250 / 500 / 1000 Kbaud) Wake-up capable Bus termination: optional (see Ordering Information)
LIN	LIN v2.2a - ISO 17987 (speeds: 9600 / 10417 (SAE J2602) / 19200 Baud) Supports both Master and Slave, and Classic/Enhanced checksums; User-configurable LIN Master's scheduler
CAN FD	ISO CAN FD (baud rate up to 8 Mbaud): optional Bus termination: optional see Ordering Information
CAN bus protocols	SAE J1939, Raw CAN

Inputs and Outputs

Number of channels	4 - 7 (see Ordering Information)
Channel mode	Configurable: Analogue/digital input, HSD output
Analogue inputs	0 - 30 V, 12-bit ADC, sample rate 20 ms
Digital inputs	Configurable voltage threshold
Digital outputs	HSD with short-circuit protection and current measurement; PWM capable Max. current 1.5 A per channel (2 A per group IO1-4 and IO5-IO7)
Mapping	Inputs and outputs can be mapped onto LIN and CAN frame data bytes

Electrical and Mechanical

Input voltage	7 - 30 V DC
Power consumption	Operation: 0.04 A @ 12 V (+20 °C) Sleep: 40 uA @ 12 V (+20 °C)
Power management	Options (see Ordering Information): • Automatic wake-up and sleep based on CAN bus activity • KL15 (Ignition switch) signal
MCU	16-bit Automotive DSP
Firmware	Firmware update over CAN bus
Connector	12-pin Molex MX150 Mating connector: Molex 33472-1201 (p/n: GW-ECU-CONNECTOR-12p)
Dimensions (L x W x H)	130 x 75 x 43 mm (5.12" x 2.95" x 1.69" in)
Weight	175 g (0.386 lb)
Operating temperature	-40 to 85 °C (-40 to 185 °F)
Ingress Protection	IP67

Certifications and Tests

Road vehicles	ECE-R10 (E1) approval
Transient pulses	ISO 7637-2
EMC	CISPR 25
ESD	EN 61000-4-2
Vibrations	EN 60068-2-27 50 g / 11 ms EN 60068-2-64 0.02 g ² 5 - 2000 Hz

User's Configuration

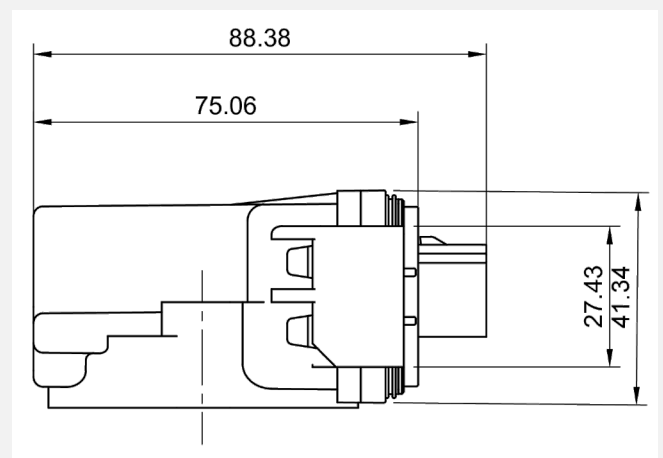
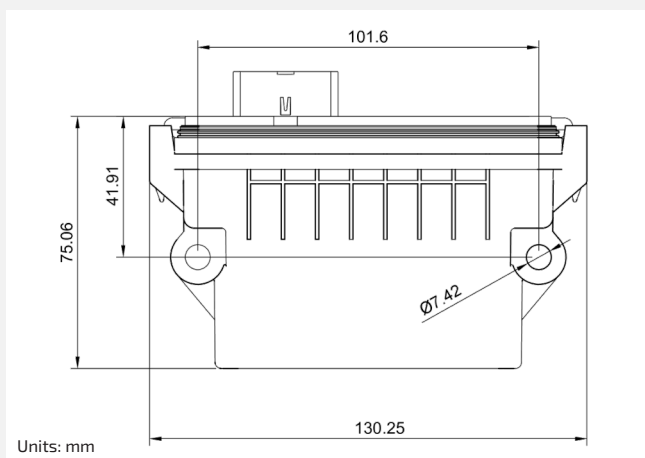
ECU modes	<ul style="list-style-type: none"> • Gateway: Configurable bi-directional frame mapping between CAN and LIN channels, digital and analogue inputs and outputs mappable onto CAN or LIN data frames. • SAE J1939: ECU's inputs and outputs are available over PGNs. Dynamic addressing and DM1 supported.
Communication channel parameters	CAN and CAN FD: Baud rate, sample point LIN: Baud rate, Checksum type, Master/Slave, scheduling table for LIN Master
Configuration	User's configuration is stored in the ECU's non-volatile memory.
PC application	ECU Configurator Tool (p/n: GW-ECU-CONFIG-TOOL) is a Windows application that allows to easily configure the ECU over CAN bus.



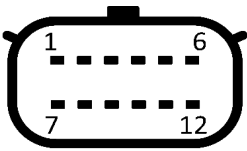
The ECU Configurator (p/n: GW-ECU-CONFIG-TOOL) PC application allows to easily configure the ECU over CAN bus. The user can set ECU's mode, communication channels' parameters, inter-channel frame conversion (frame mappings), and I/O mappings. The configuration is stored in the device's non-volatile memory.

The CAN-LIN Gateway is available in several variants that offer combinations of single-CAN / dual-CAN (CAN FD supported), with/without CAN termination, and automatic wake-up and sleep based on CAN bus activity / control over the ignition switch (KL15) input signal.

MECHANICAL DRAWINGS



CONNECTOR

Molex MX 150	Pin	Function		Note
		Pinout Type A	Pinout Type B	
 <p>Front view</p>	1	I01	I01	optionally KL15 (see Ordering Information)
	2	I02	I02	
	3	I03	I03	
	4	I04	I04	
	5	I05	CAN2_H	
	6	I06	CAN2_L	
	7	VBat	VBat	KL30
	8	Gnd	Gnd	KL31
	9	CAN1_H	CAN1_H	
	10	CAN1_L	CAN1_L	
	11	LIN1	LIN1	
	12	I07	I07	



ORDERING INFORMATION

ECU

Product Number	CAN Channels			LIN Channel	I/O	Wake-up		Pinout Type
	CAN1 (CAN 2.0B)	CAN2 (ISO CAN FD)	On-board Termination			CAN1	KL15	
CAN-LIN-GW-ECU	•			•	7	•		A
CAN-LIN-GW-ECU-KL15	•			•	6		•	A
CAN-LIN-GW-ECU-term	•		•	•	7	•		A
CAN-LIN-GW-ECU-term-KL15	•		•	•	6		•	A
CAN-LIN-GW-ECU-CANFD	•	•		•	5	•		B
CAN-LIN-GW-ECU-CANFD-KL15	•	•		•	4		•	B
CAN-LIN-GW-ECU-CANFD-term	•	•	•	•	5	•		B
CAN-LIN-GW-ECU-CANFD-term-KL15	•	•	•	•	4		•	B

ACCESSORIES

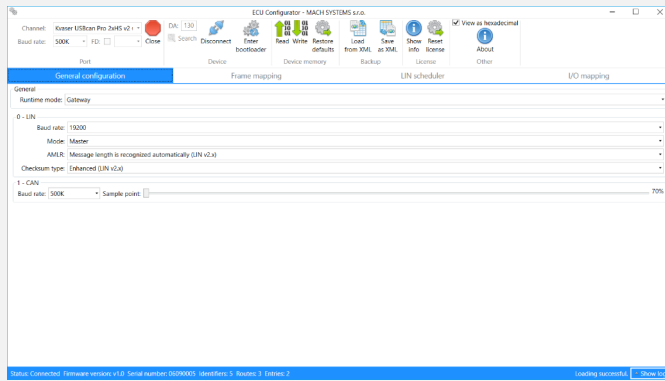
Product Number	Description
GW-ECU-CONFIG-TOOL	ECU Configurator - PC tool (without a Kvaser interface)
GW-ECU-CONFIG-TOOL-KVASER-IF	ECU Configurator - PC tool including a CAN-USB Kvaser Leaf Light HS v2 interface
GW-ECU-CONNECTOR-12p	Mating connector including 12 female terminals (Molex 1 pc 33472-1201 and 12 pcs 33012-2002)
GW-ECU-HARNESS-12p-1m	Cable harness with 12-pin connector for development and prototyping; length 1 m



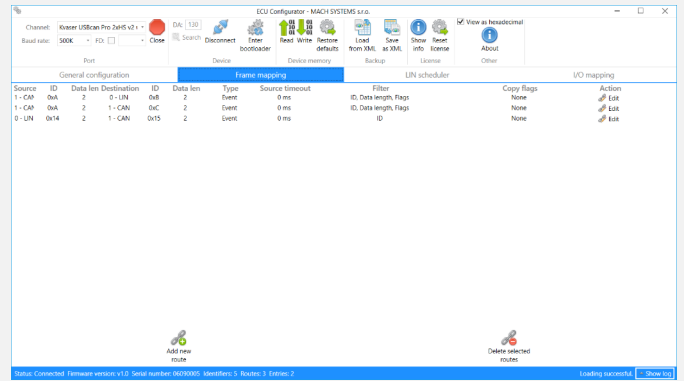


ECU CONFIGURATOR APPLICATION

General Configuration



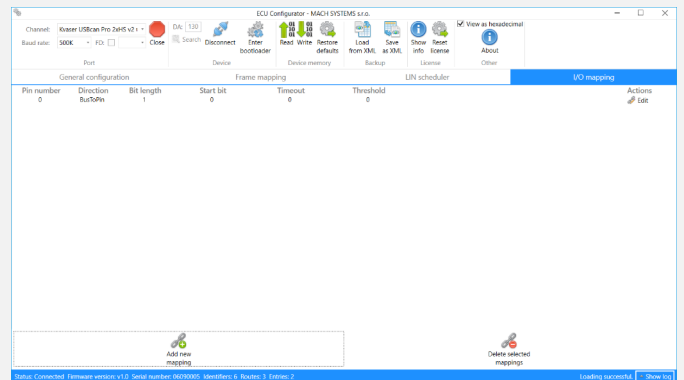
Frame Mapping



LIN Scheduler



I/O Mapping



MACH SYSTEMS s.r.o.
www.machsystems.cz
info@machsystems.cz
 Czech Republic

