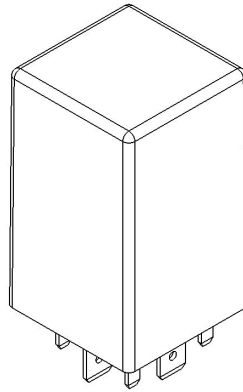


mounting direction



angled view

DESCRIPTION

The Micro Gateway is a compact gateway for automotive applications. Due to its small size and simple installation, it offers a wide range of application possibilities.

TECHNICAL DATA

Housing	PA66GF30 Plastic
Connector	9-pin base plate
Weight	33 g
Temperature range (acc. to ISO 16750-4)	-40 °C to +85 °C
Environmental Protection	IP 6K8, when watertight socket is used and the mounting direction is correct
Current consumption	55 mA at 12 V and 24 V
Over-current protection	1 A
Total Inputs and outputs	Depending on assembly: 1 analog/digital input, 1 highside output
Input (Depending on assembly)	Analog input 0...33.7 V
Output (Depending on assembly)	Digital output, positive switching
Operating voltage	12 V / 24 V (Depending on assembly)
Starting voltage	> 6 V
Overvoltage protection	33 V
Undervoltage cut-off	< 6 V
Quiescent current	55 µA (at 12 V); 125 µA (at 24 V)
Reverse polarity protection	Yes
CAN Interfaces	Highspeed 2.0 A/B ISO 11898-2 compliant

REGULATORY APPROVALS AND TESTING

E1 approval	ECE R10 06 7139
Elektrical tests	Acc. to ISO 16750-2: Short circuit protection bus wire Short circuit protection supply I/O-lines Reverse polarity protection Interruption pin Interruption plug Acc. to ISO 16750-4: Long-term overvoltage at 65 °C Storage test Tmax and Tmin Operation test Tmax and Tmin Acc. to ISO 7637: KFZ-Pulse 1 to 4 ECE R10 compliant

SOFTWARE/PROGRAMMING

Programming System

MRS Developers Studio

MRS Developers Studio with built-in functions library, similar programming with FUP. Custom software blocks can be integrated into "C-code". Program memory is sufficient for about 300 basic logic components.

For extended storage capacity from 32k you need the Codewarrior license. Download the paid license easily and securely from NXP.

INPUT FEATURES - SUMMARY

Pin 8 (AI)			Pin 4 (KL15)		
Usable as analog or digital input	Resolution	12 Bit	Usable as analog or digital input	Resolution	12 Bit
Depending on assembly	Input resistance	66 kΩ	Voltage input 0...33 V	Input resistance	11.5 kΩ
	Input frequency	$f_c^1 = 44 \text{ Hz}$		Input frequency	$f_c^1 = 40 \text{ Hz}$
	Accuracy	$\leq 3 \%$ relative		Accuracy	$\leq 3 \%$ relative
Digital input Positive	Input resistance	66 kΩ	Digital input Positive	Input resistance	11.5 kΩ
	Turn-on threshold	19.1 V		Turn-on threshold	6.7 V
	Turn-off threshold	15.5 V		Turn-off threshold	4.8 V

¹ cutoff frequency (-3 dB)

OUTPUT FEATURES - SUMMARY

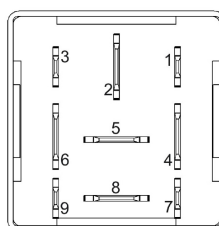
Pin 8 (AI)		
Protective circuit for inductive loads		Integrated
Depending on assembly		
Digital, positive switching (high side; see B)	Switching Voltage	9-14 V
	Switching current	1 A

PIN ASSIGNMENT POWER SUPPLY AND INTERFACES

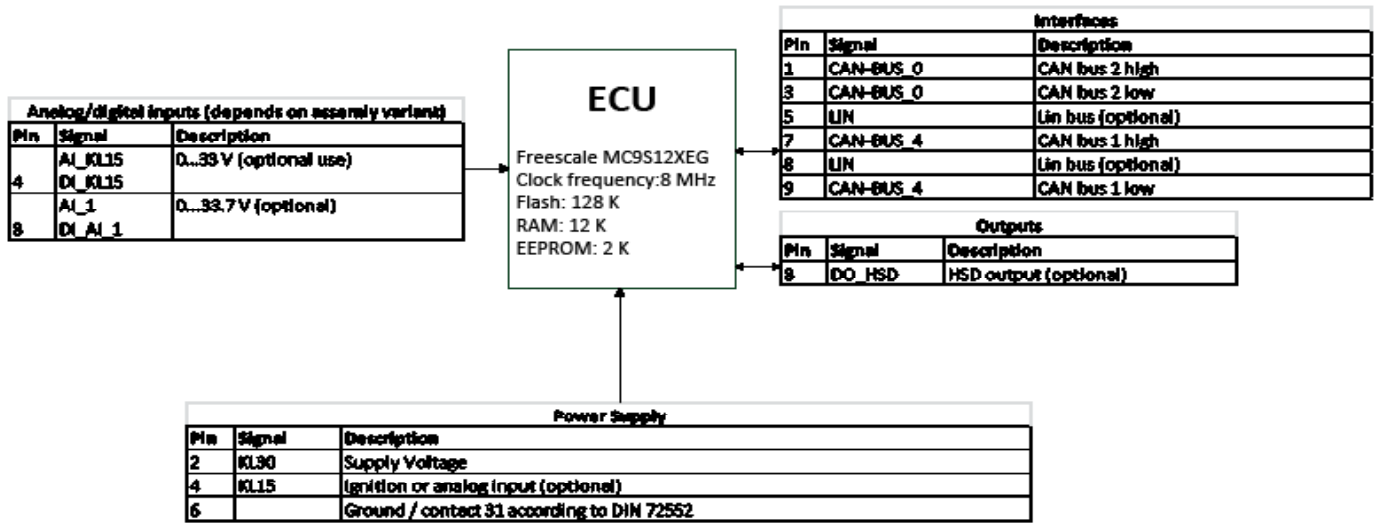
Pin	Description	Pin	Description
1	CAN Bus 2 High	5	LIN (Depending on assembly)
2	Operating voltage	6	Ground
3	CAN bus 2 low	7	CAN bus 1 high
4	Ignition, KL15	9	CAN bus 1 low

PIN ASSIGNMENT IN- AND OUTPUTS

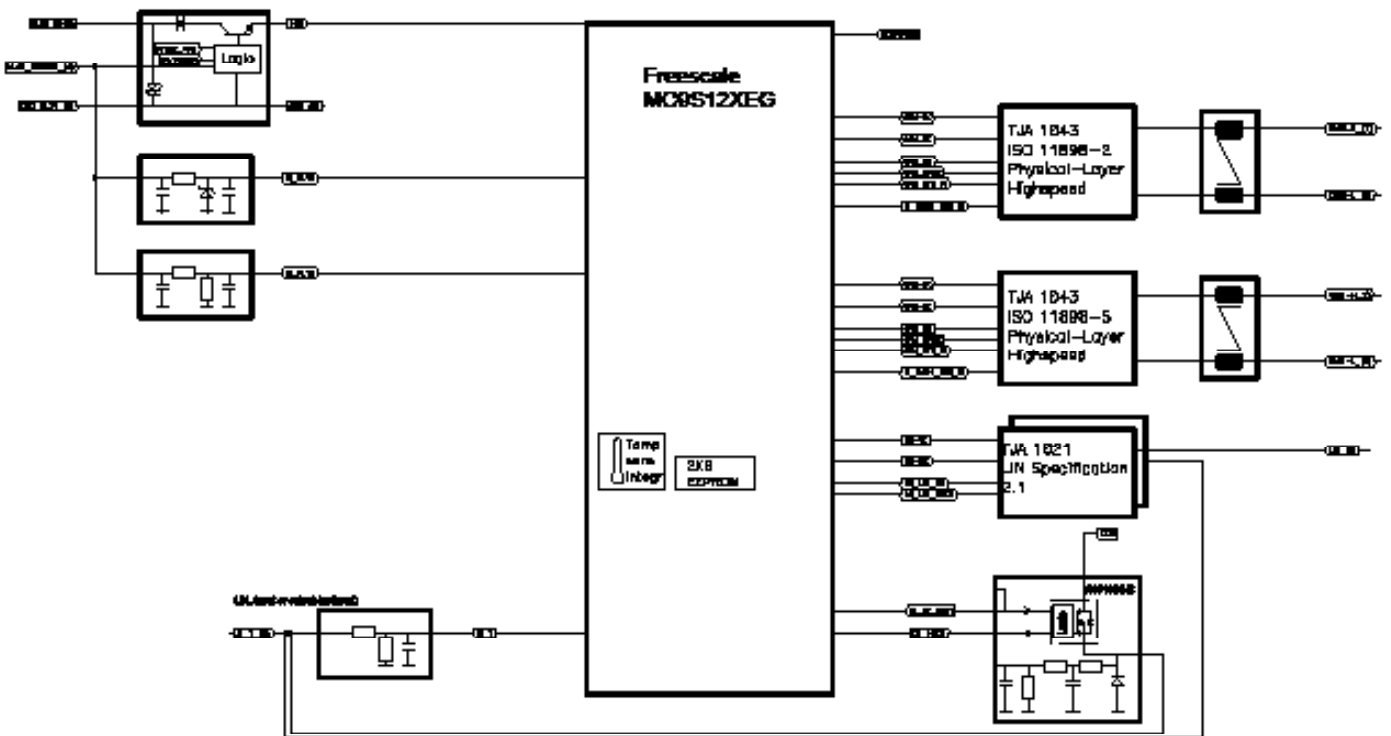
Pin	Signal	Description	Pin	Signal	Description
8	AI_1 DI_AI_1	Depending on assembly: Analog input 1 0...33.7 V or digital input	4	AI_KL15 DI_KL15	Analog input KL15 0...33 V or digital input
	DO_HSD DI_ST_HSD	Optional: Highside output Status highside output (on/off)			



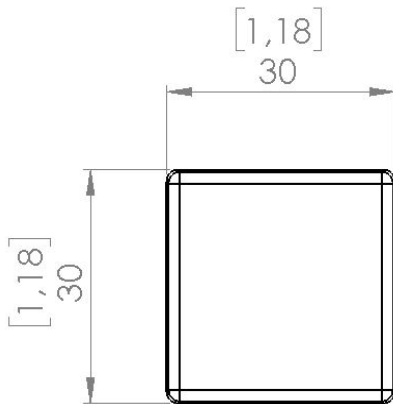
PIN FEATURE MAP



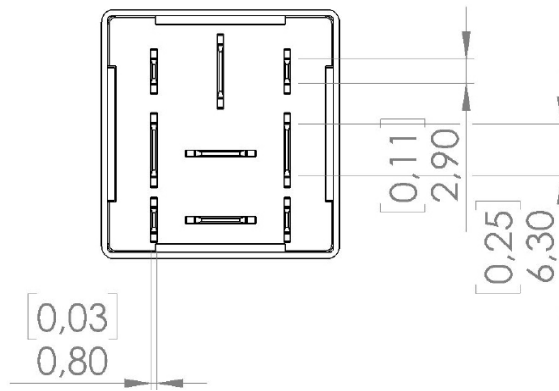
BLOCK FUNCTION DIAGRAM



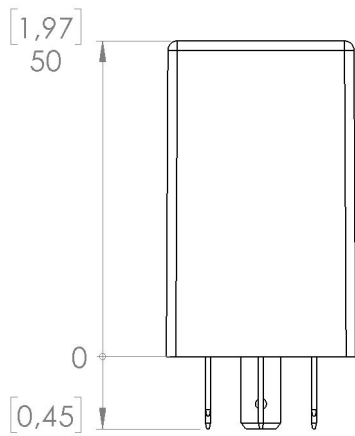
TECHNICAL DRAWING IN MM [IN INCH]



aerial view



bottom view



side view

ASSEMBLY VARIANTS AND ORDERING INFORMATIONS

	Voltage	Pins input / output	LIN bus	CAN bus	Wake up	Terminating resistance	Description
		A Analog input AI 1 0...33.7 V	F incl. 1 kΩ pull-up	CAN bus 1 CAN bus 2		120 Ohm	
1.114.110.00	12 V	8	5	7, 9 1, 3	LIN, CAN, DO_POWER		
1.114.110.0012	12 V	8	5	7, 9 1, 3	LIN, CAN, DO_POWER	CAN bus 1 and CAN bus 2	12 V LIN
1.114.111.0000	12 V		5	7, 9 1, 3	LIN, CAN, DO_POWER	CAN bus 2	
1.114.130.0000	12 V		5, 8	7, 9 1, 3	LIN, CAN, DO_POWER		
1.114.210.0012	24 V	8	5	7, 9 1, 3	LIN, CAN, DO_POWER	CAN bus 1 and CAN bus 2	24 V LIN
1.114.230.0012	24 V		5, 8	7, 9 1, 3	LIN, CAN, DO_POWER	CAN Bus 1 und CAN Bus 2	24 V LIN
1.114.300.00	9-32 V	8		7, 9 1, 3	CAN, DO_POWER		
1.114.300.0011	9-32 V	8		7, 9 1, 3	DO_POWER	CAN bus 1 and CAN bus 2	
1.114.300.2033	9-32 V	8		7, 9 1, 3	CAN, DO_POWER	CAN Bus 1 without termina- ting resistor, CAN Bus 2 with terminating resistor	
1.114.111.0005	12 V		5	7, 9 1, 3	LIN, CAN, DO_POWER		

ACCESSORIES

Description	Order number
Programming tool MRS Developer Studio	1.100.100.09
Socket	1.017.002.00
Socket package watertight 50 mm	300048
Cable set to program Micro Gateway (connection KL 30 and CAN L2 has to be detached)	109446

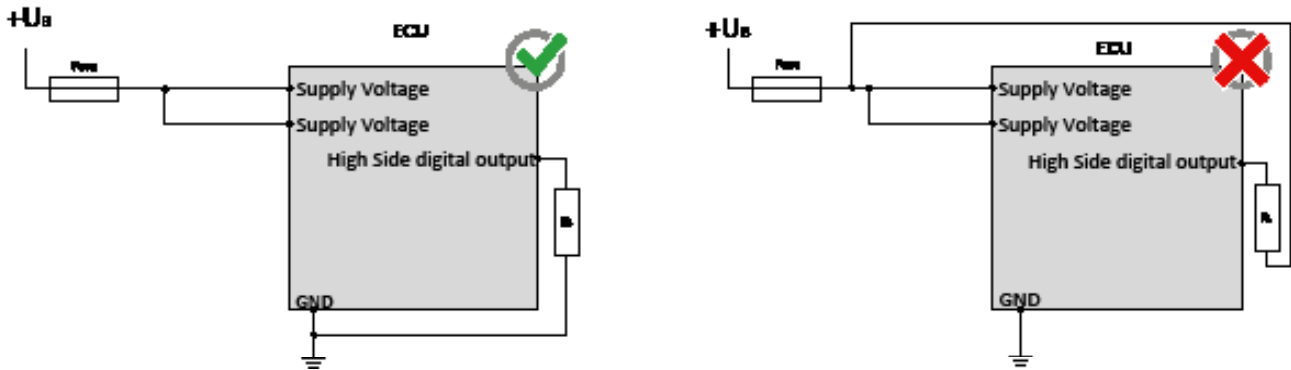


MANUFACTURER

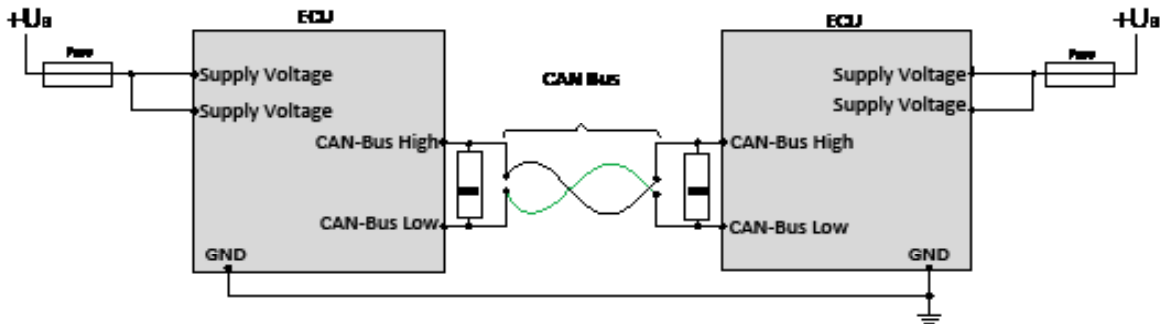
MRS Electronic, Inc.
6680 Poe Avenue Suite 100
Dayton OH, 45414
USA

NOTES ON WIRING AND CABLE ROUTING

Hightside outputs mav only be switched to around.



The CAN-Bus or LIN-Bus communication is the main communication between the ECU and the vehicle. Therefore, connect the CAN bus or Lin bus with special care and check the correct communication with the vehicle to avoid unwanted behaviour.



SAFETY AND INSTALLATION INFORMATION

It is essential to read the instructions in full thoroughly before working with the device.

Please note and comply with the instructions in the operating instructions and the information in the device data sheet, see www.mrs-electronic.com

Staff qualification: Only staff with the appropriate qualifications may work on this device or in its proximity.

SAFETY



WARNING! Danger as a result of a malfunction of the entire system.

Unforeseen reactions or malfunctions of the entire system may jeopardise the safety of people or the machine.

- Ensure that the device is equipped with the correct software and that the wiring and settings on the hardware are appropriate.



WARNING! Danger as a result of unprotected moving components.

Unforeseen dangers may occur from the entire system when putting the device into operation and maintaining it.

- Switch the entire system off before carrying out any work and prevent it from unintentionally switching back on.
- Before putting the device into operation, ensure that the entire system and parts of the system are safe.
- The device should never be connected or separated under load or voltage.



CAUTION! Risk of burns from the housing.

The temperature of the device housing may be elevated.

- Do not touch the housing and let all system components cool before working on the system.

PROPER USE

The device is used to control or switch one or more electrical systems or sub-systems in motor vehicles and machines and may only be used for this purpose. The device may only be used in an industrial setting.



WARNING! Danger caused by incorrect use.

The device is only intended for use in motor vehicles and machines.

- Use in safety-related system parts for personal protection is not permitted.
- Do not use the device in areas where there is a risk of explosion.

Correct use:

- operating the device within the operating areas specified and approved in the associated data sheet.
- strict compliance with these instructions and no other actions which may jeopardise the safety of individuals or the functionality of the device.

Obligations of the manufacturer of entire systems

It is necessary to ensure that only functional devices are used. If devices fail or malfunction, they must be replaced immediately.

System developments, installation and the putting into operation of electrical systems may only be carried out by trained and experienced staff who are sufficiently familiar with the handling of the components used and the entire system.

It is necessary to ensure that the wiring and programming of the device does not lead to safety-related malfunctions of the entire system in the event of a failure or a malfunction. System behaviour of this type can lead to a danger to life or high levels of material damage.

The manufacturer of the entire system is responsible for the correct connection of the entire periphery (e.g. cable cross sections, correct selection/connection of sensors/actuators).

Opening the device, making changes to the device and carrying out repairs are all prohibited. Changes or repairs made to the cabling can lead to dangerous malfunctions. Repairs may only be carried out by MRS.

Installation

The installation location must be selected so the device is exposed to as low a mechanical and thermal load as possible. The device may not be exposed to any chemical loads.

Install the device in such a manner that the plugs point downwards. This means condensation can flow off the device. Single seals on the cables/leads must be used to ensure that no water gets into the device.

Putting into operation

The device may only be put into operation by qualified staff. This may only occur when the status of the entire system corresponds to the applicable guidelines and regulations.

FAULT CORRECTION AND MAINTENANCE



NOTE The device is maintenance-free and may not be opened.

- If the device has damage to the housing, latches, seals or flat plugs, it must be taken out of operation.

Fault correction and cleaning work may only be carried out with the power turned off. Remove the device to correct faults and to clean it.

Check the integrity of the housing and all flat plugs, connections and pins for mechanical damage, damage caused by overheating, insulation damage and corrosion. In the event of faulty switching, check the software, switches and settings.

Do not clean the device with high pressure cleaners or steam jets. Do not use aggressive solvents or abrasive substances.