

ICCS CAN I/O

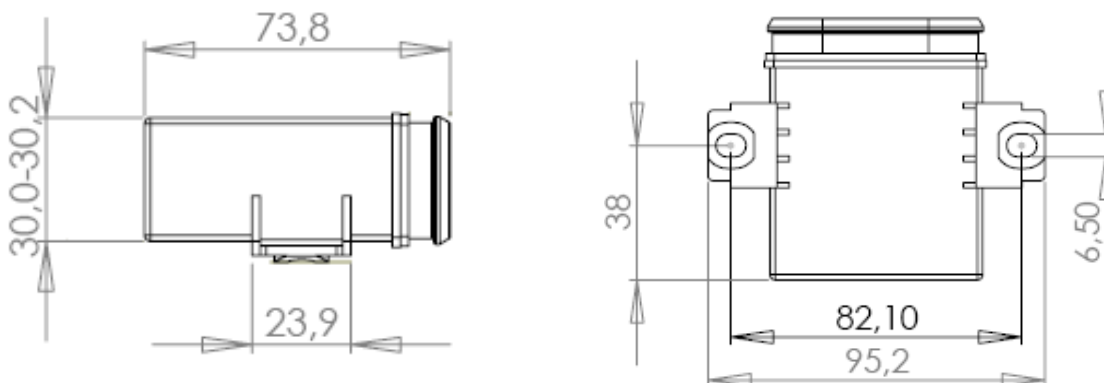
ICCS CAN I/O is part of the Intelligent Control and Command Systems (ICCS) product range. The **ICCS CAN I/O** can either be used as a stand alone module or as an extension module to an existing CAN system.

Features

- 60 mm x 60 mm x 30 mm housing size
- 95 mm x 74 mm x 33 mm overall dimensions
- Mini fit 22 way connector
- Lower consumption, complete sleep mode available
- Up to 2x4 way high side outputs
- Up to 12 analogue inputs
- CAN bus 2.0B
- Software and hardware boot loader available



Housing




Application Examples

- CAN to output extension module
- Input to CAN extension module
- Analogue sensor to CAN module
- Light control module

ICCS CAN I/O

Technical Data

- Temperature range : -40°C to 85°C (no full load at 85°C)
 - Voltage range : 9 to 30V
 - Ingress protection : IP 23 with standard housing
IP 53 with optional sealing
 - EMC : 2009/28/EG; DIN 40839
 - E1 certification (in process)
 - 1 activation pin KL15 (to wake up from the sleep mode. **Must be high in order module works**)
 - 1 analogue input 0-30V or 0-10V (depending on CAN I/O type)
 - 5 analogue inputs 0-10V
 - 8 inputs/outputs pin
 - 6 I/O digital outputs or analogue inputs (0-10V)
 - 2 I/O digital outputs or digital inputs
 - Current output capacity :
 - 1 power supply pin per high side module
 - 8 Amp max. per high side module 10/15A
-  *Every analogue input is also available as a digital input in the programming software*
- Molex mini fit 22 way connector
 - Freescale HCS08 processor with 60KB flash memory
 - 1 KB EEPROM available to backup data
 - CAN high speed (ISO 11898-2), SAE J1939 compatible
 - Hardware or software boot loader available (Software updates through CAN bus)
 - A defective cable, short circuit or overload can be detected by using high side VNQ5050 dedicated hardware. Output status is checked by monitoring output sourced current (in mA).
 - The software boot loader has the ability to update the firmware directly through the CAN bus by reserving addresses for this purpose

ICCS CAN I/O

Technical Data cont'd

Operating voltage	9 to 30VDC
Current consumption	Max 30mA
Digital inputs	
Input voltage range	0 to Vcc
Input resistance	22,6k Ω
Input frequency	Max 100Hz
Digital outputs	
Load current	2,5A / channel
Analog inputs	
Input voltage range	0 to 11,3V or 0 to 33,68V module type related
Resolution	12bit
Input resistance	22,6k Ω or 66,6k Ω
Input frequency	Max 100Hz or up to 5kHz module type related
PWM outputs	
PWM frequency	Max 1kHz
Duty cycle	0 to 100%
Load current	Max 1A at 1kHz / channel

ICCS CAN I/O

ICS-95065, ICS-95114, ICS-100710 pin assignment.

Connector Pin	Pin Name	Function for Pinout / Program
01	GND	Ground
02	AI 5	Analogue Input 5 0-30V
03	AI 4	Analogue Input 4 0-10V
04	AI 3	Analogue Input 3 0-10V
05	AI2	Analogue Input 2 0-10V
06	AI 1	Analogue Input 1 0-10V
07	AI 0 ^{BL}	Analogue Input 0 0-10V (BL)
08	KL15	Activation Pin (KL15) DI0
09	CAN-H	CAN High
10	CAN-L	CAN Low
11	Adr. GND	Address Ground
12	VCC for O0-3	Power Supply HSD Output 0-3
13	I/O 0	Analogue Input I/O 0
		Digital Output DO0 and Status Output S0/ IO 0-10A
14	I/O 1	Analogue Input I/O 1 0-10V
		Digital Output DO1 and Status Output S1/ I1 0-10A
15	I/O 2	Analogue Input I/O 2 0-10V
		Digital Output DO2 and Status Output S2/ I2 0-10A
16	I/O 3	Analogue Input I/O 3 0-10V
		Digital Output DO3 and Status Output S3/ I3 0-10A
17	VCC for O4-7	Power Supply HSD Output 4-7
18	I/O 4	Analogue Input I/O 4 0-10V
		Digital Output DO4 and Status Output S4/ I4 0-10A
19	I/O 5	Analogue Input I/O 5 0-10 V
		Digital Output DO5 and Status Output S5 / I5 0-10A
20	I/O 6	Digital Input I/O 6 - On > 6.5V / Off < 4.5V
		Digital Output DO6 and Status Output S6 / I6 0-10A
21	I/O 7	Digital Input I/O 7 - On > 6.5V / Off < 4.5V
		Digital Output DO7 and Status Output S7 / I7 0-10A
22	Adr.	Single Wire Address DI2

Pin out of the connector

Addr	I/O 7	I/O 6	I/O 5	I/O 4	Vcc 4-7	I/O 3	I/O 2	I/O 1	I/O 0	Vcc 0-3
22	21	20	19	18	17	16	15	14	13	12
11	10	9	8	7	6	5	4	3	2	1
Addr GND	CAN-L	CAN-H	KL15	AI 0	AI 1	AI 2	AI 3	AI 4	AI 5	GND

BL=Boot Loader: Input for hardware boot loader version, when high on boot up, the boot loader is activated.

ICCS CAN I/O

ICS-97191 pin assignment

Connector Pin	Pin Name	Function for Pinout / Program
01	GND	Ground
02	AI 5	Analogue Input 5 0-10V 5kHz max frequency measurement
03	AI 4	Analogue Input 4 0-10V
04	AI 3	Analogue Input 3 0-10V 5kHz max frequency measurement
05	AI2	Analogue Input 2 0-10V
06	AI 1	Analogue Input 1 0-10V
07	AI 0	Analogue Input 0 0-10V
08	KL15	Activation Pin (KL15) DI0
09	CAN-H	CAN High
10	CAN-L	CAN Low
11	Adr. GND	Address Ground
12	VCC for O0-3	Power Supply HSD Output 0-3
13	I/O 0	Analogue Input I/O 0
		Digital Output DO0 and Status Output S0/ IO 0-10A
14	I/O 1	Analogue Input I/O 1 0-10V
		Digital Output DO1 and Status Output S1/ I1 0-10A
15	I/O 2	Analogue Input I/O 2 0-10V
		Digital/ PWM Output DO2 and Status Output S2/ I2 0-10A 1000Hz 1A max
16	I/O 3	Analogue Input I/O 3 0-10V
		Digital/ PWM Output DO3 and Status Output S3/ I3 0-10A 1000Hz 1A max
17	VCC for O4-7	Power Supply HSD Output 4-7
18	I/O 4	Analogue Input I/O 4 0-10V
		Digital/ PWM Output DO4 and Status Output S4/ I4 0-10A 1000Hz 1A max
19	I/O 5	Analogue Input I/O 5 0-10 V
		Digital/ PWM Output DO5 and Status Output S5 / I5 0-10A 1000Hz 1A max
20	I/O 6	Digital Input I/O 6 - On > 6.5V / Off < 4.5V
		Digital/ PWM Output DO6 and Status Output S6 / I6 0-10A 1000Hz 1A max
21	I/O 7	Digital Input I/O 7 - On > 6.5V / Off < 4.5V
		Digital/ PWM Output DO7 and Status Output S7 / I7 0-10A 1000Hz 1A max
22	Adr.	Single Wire Address DI2

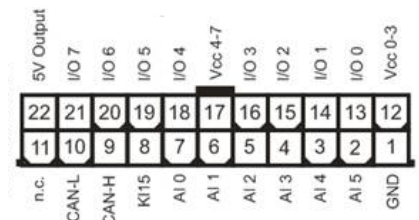
Same connector pin out as ICS-95065, ICS-95114, ICS-100710

ICCS CAN I/O

ICS-97212 pin assignment

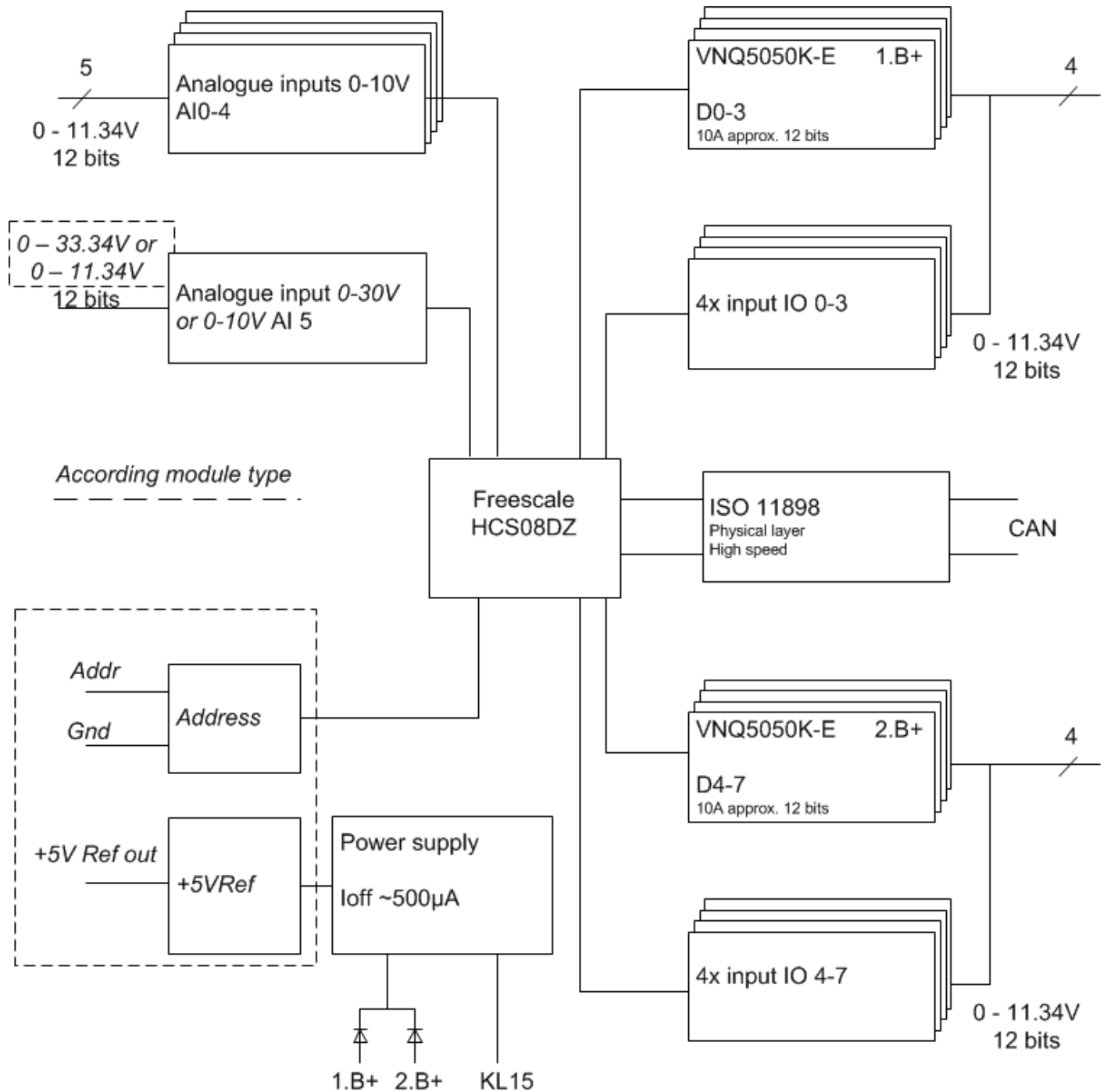
Connector Pin	Pin Name	Function for Pinout / Program
01	GND	Ground
02	AI 5	Analogue Input 5 0-30V
03	AI 4	Analogue Input 4 0-10V
04	AI 3	Analogue Input 3 0-10V
05	AI2	Analogue Input 2 0-10V
06	AI 1	Analogue Input 1 0-10V
07	AI 0	Analogue Input 0 0-10V
08	KL15	Activation Pin (KL15) DI0
09	CAN-H	CAN High
10	CAN-L	CAN Low
11	NC	No connect
12	VCC for O0-3	Power Supply HSD Output 0-3
13	I/O 0	Analogue Input I/O 0
		Digital Output DO0 and Status Output S0/ IO 0-10A
14	I/O 1	Analogue Input I/O 1 0-10V
		Digital Output DO1 and Status Output S1/ I1 0-10A
15	I/O 2	Analogue Input I/O 2 0-10V
		Digital Output DO2 and Status Output S2/ I2 0-10A (2)
16	I/O 3	Analogue Input I/O 3 0-10V
		Digital Output DO3 and Status Output S3/ I3 0-10A (2)
17	VCC for O4-7	Power Supply HSD Output 4-7
18	I/O 4	Analogue Input I/O 4 0-10V
		Digital Output DO4 and Status Output S4/ I4 0-10A (2)
19	I/O 5	Analogue Input I/O 5 0-10 V
		Digital Output DO5 and Status Output S5 / I5 0-10A (2)
20	I/O 6	Digital Input I/O 6 - On > 6.5V / Off < 4.5V
		Digital Output DO6 and Status Output S6 / I6 0-10A (2)
21	I/O 7	Digital Input I/O 7 - On > 6.5V / Off < 4.5V
		Digital Output DO7 and Status Output S7 / I7 0-10A (2)
22	+5VREF	+5V reference output (500mA max)

Pin out of the connector



ICCS CAN I/O

Hardware Map



Separate high side power supply has the ability to completely shut down a group of 4 outputs (safety purpose).

As long as one high side is powered (and KL15 = 1), the µ processor is totally operational (also CAN bus).

ICCS CAN I/O

Programming

The Freescale HCS08 processor used in this product has 60KB of flash memory.

There are 2 methods to set your own program

1. Visual programming using the ICCS SDK Plus

This exclusive software is the easiest way to create your own application software.

2. Programming with the C IDE from Freescale : Codewarrior

Advantages of Visual Programming

- No specific knowledge about microprocessor is required
- Introducing quick and easy application software modification

Notice : With the use of the visual programming, the CAN bus and microprocessor possibility are reduced due to foreseen programming blocks.

Advantages of C Programming

- No limitation in applications and use of peripherals (EEPROM, CAN bus, etc.)

Notice : An in depth knowledge of Freescale HCS08 programming language is needed to use and set all possible functions.

Application Software Creation

Whether your application is a stand alone or a CAN based system, we can help create software or provide you the application matching your specification.

ICCS CAN I/O

Available References

ICCS CAN I/O hardware boot loader	ICS-95065
ICCS CAN I/O software boot loader	ICS-95114
ICCS CAN I/O software boot loader + diode on PWM output	ICS-100710
ICCS CAN I/O 2 x RPM 6 x PWM software boot loader	ICS-97191
ICCS CAN I/O +5VREF software boot loader	ICS-97212

Mating Connector: available at Würth Elektronik eiCan

Part	Part Number	Packaging Unit
22 pin mini fit housing	649 022 113 322	300 pcs / bag
Crimp contact : AWG 16	649 005 137 22	4.000 pcs / reel
	649 105 137 22	200 pcs / reel
Crimp contact : AWG 18 – 24	649 006 137 22	4.000 pcs / reel
	649 006 137 22	200 pcs / reel
Crimp contact : AWG 22 – 28	649 007 137 22	5.000 pcs / reel
	649 107 137 22	500 pcs / reel