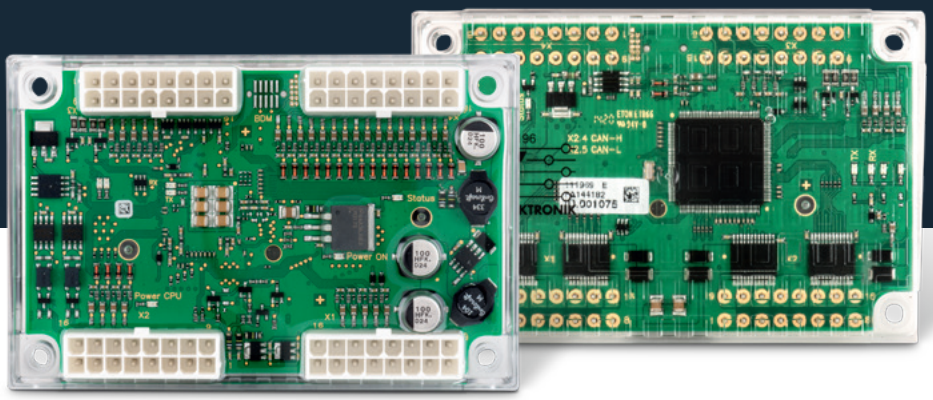
ICCS CAN CONTROLLER 64P

Controllers



The **ICCS CAN Controller 64P** contains a 16 bit processor (HCS12XEQ) with an integrated co-processor has enough computing power to handle complex tasks. The digital information, analogue voltages, currents and signal frequencies can be detected and processed. The two integrated CAN high-speed interfaces allow the data exchange between two independent buses or enable gateway / filter functions. Naturally, these controllers are programmed graphically and are suitable for the use as an extension to the existing CAN bus network. They can be used as a stand-alone solution or for mounting on the PCB.

Applications

- Monitoring of fuses and switching of relay
- Control unit for power distribution units
- Sensor to CAN bus
- CAN to CAN gateway
- Input output extension

Technical data

General information	
Housing	Transparent
Connector	4 x Molex Mini Fit 16 Ways
Dimensions	76 x 116 x 15 mm
Weight	155 g
Operating temperature	-40 °C to 85 °C (no full load at 85 °C)
Storage temperature	-40 °C to 85 °C
Ingress protection	IP 54
Operating voltage Vsupply	9 V to 30 V DC
Pre-fusing	10 A / block (HSD outputs)
Current consumption	70 mA
Processor type	Freescale HCS12XEQ
Clock frequency	100 MHz
Flash memory	384 kB
RAM	24 kB
EEPROM	1 kB available for graphical programming

CAN Bus	
acc. ISO 11898-2	High speed
acc. CAN 2.0B	29 Bits extended address identifier
acc. CAN 2.0A	11 Bits address identifier
Baud rate	20 kBit/s to 1000 kBit/s (125 kBit/s default value)

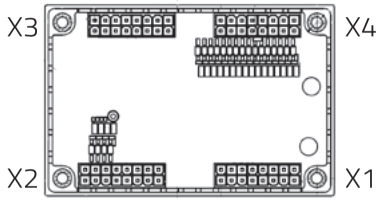
Inputs / outputs overview		
4	Analogue inputs	0–11.4 V DC / 0–23 mA
10	Analogue inputs	0–11.4 V DC
18	Digital inputs	Switch-on / switch-off level: see details
4	Digital inputs with IRQ	Switch-on / switch-off level: 2.9 V / 1.9 V DC
4	Digital inputs or digital outputs	Switch-on / switch-off level: see details High side outputs max 2 A
12	Digital outputs	High side outputs max 2 A

Inputs / outputs details	
Analogue inputs	
Input voltage max	Vsupply
Measuring range	0–11.4 V DC / 0–23 mA
Resolution	12 Bits
Input resistance	22.6 kΩ
Pull-down resistance	Switchable 0.5 / 1 kΩ in 0–20 mA mode
Digital inputs	
Input voltage	0 V DC to Vsupply
Switch-on level	6 V (12 V version) 14 V (24 V)
Switch-off level	5 V (12 V version) 12 V (24 V)
Input resistance	7.88 kΩ
Digital outputs	**High side**
Load current	max 2 A diagnostic current sense
IRQ inputs	
Input resistance	100 kΩ
Input frequency	5 kHz

* Every analogue input is also usable as a digital input in the programming software

Hardware map

Allocation of the connectors



-X2	8	B+ 1	**Power supply** For outputs 0 to 3	**1x**
-X2	1	B+ 2	**Power supply** For outputs 4 to 7	**1x**
-X1	8	B+ 3	**Power supply** For outputs 8 to 11	**1x**
-X1	1	B+ 4	**Power s upply** For outputs 12 to 15	**1x**
-X1	2	GND	**Ground**	**1x**
-X3	2	GND	**Ground**	**1x**

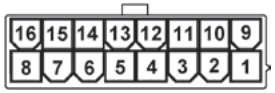
-X1	7	ANA0	**Analogue input** 0–11.3 V DC, 12 Bits	**10x**
	6	ANA1		
	5	ANA2		
	4	ANA3		
	3	ANA4		
-X3	13	ANA5		
	5	ANA6		
	12	ANA7		
	4	ANA8		
	11	ANA9		
	3	ANA_UI_0	**Analogue input** 0–20 mA or 0–11.3 V DC, 12 Bits	**4x**
	10	ANA_UI_1		
	1	ANA_UI_2		
	9	ANA_UI_3		
-X4	16	DIGIN_DI0	**Digital input** Switch-on 6V (12 V version) 14V (24 V version) Switch-off 5V (12 V version) 12 V (24 V version)	**18x**
	8	DIGIN_DI1		
	15	DIGIN_DI2		
	7	DIGIN_DI3		
	14	DIGIN_DI4		
	6	DIGIN_DI5		
	13	DIGIN_DI6		
	5	DIGIN_DI7		
	12	DIGIN_DI8		
	4	DIGIN_DI9		
	11	DIGIN_DI10		
	3	DIGIN_DI11		
	10	DIGIN_DI12		
	2	DIGIN_DI13		
	9	DIGIN_DI14		
	1	DIGIN_DI15		
-X3	16	DIGIN_DI16		
	8	DIGIN_DI17		
	6	DIGIN_RPM_A0	**Digital input with IRQ** Switch-on 2.9 V Switch-off 1.9 V	**4x**
	7	DIGIN_RPM_A1		
	14	DIGIN_RPM_B0		
	15	DIGIN_RPM_B1		

Microcontroller
Freescale HCS12XEQ

FLASH	384 kB
RAM	24 kB
EEPROM	1 kB*

*EEPROM available for graphical programming

Pinout of the connectors



4x	**Digital input or Digital output** Switch-on 6 V (12 V) 14 V (24 V) Switch-off 5 V (12 V) 12 V (24 V) 2 A / output*	DIGIN_DI18	16	-X2
		DIGOUT_HSD0		
		DIGIN_DI19	15	
		DIGOUT_HSD1		
		DIGIN_DI20	14	
		DIGOUT_HSD2		
		DIGIN_DI21	13	
		DIGOUT_HSD3		
12x	**Digital output** 2 A / output*	DIGOUT_HSD4	12	-X2
		DIGOUT_HSD5	11	
		DIGOUT_HSD6	10	
		DIGOUT_HSD7	9	
		DIGOUT_HSD8	16	-X1
		DIGOUT_HSD9	15	
		DIGOUT_HSD10	14	
		DIGOUT_HSD11	13	
		DIGOUT_HSD12	12	
		DIGOUT_HSD13	11	
		DIGOUT_HSD14	10	
		DIGOUT_HSD15	9	

* external free wheeling diode necessary for inductive load!

2x	**Reference voltage** 5 V, max 200 mA	5V_out	2	-X2
	Reference voltage 10V*, max 150 mA	10V_out	3	

*Only available when Vsupply is greater than 15 V

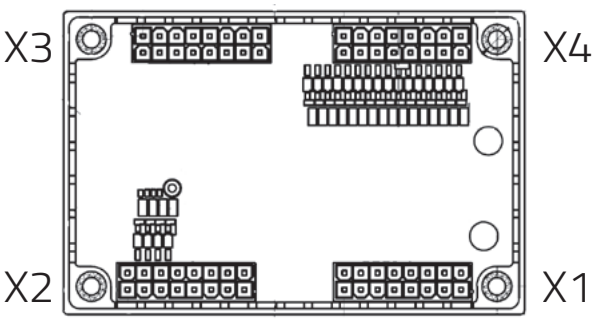
1x	**CAN BUS 0**	CAN_0H	4	-X2
		CAN_0L	5	
1x	**CAN BUS 1**	CAN_1H	6	
		CAN_1L	7	

Pin assignment

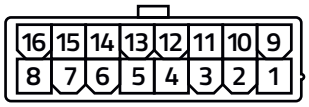
X3 Connector		
Pin	**Description**	**Function**
1	Ana_UI_2	Analogue input 0–10 V or 0–20 mA
2	GND	Ground
3	Ana_UI_0	Analogue input 0–10 V or 0–20 mA
4	ANA8	Analogue input 0–10 V
5	ANA6	Analogue input 0–10 V
6	DIGIN_RPM_A0	Digital input with IRQ
7	DIGIN_RPM_A1	Digital input with IRQ
8	DIGIN_DI17	Digital input
9	Ana_UI_3	Analogue input 0–10 V or 0–20 mA
10	Ana_UI_1	Analogue input 0–10 V or 0–20 mA
11	ANA9	Analogue input 0–10 V
12	ANA7	Analogue input 0–10 V
13	ANA5	Analogue input 0–10 V
14	DIGIN_RPM_B0	Digital input with IRQ
15	DIGIN_RPM_B1	Digital input with IRQ
16	DIGIN_DI16	Digital input

X4 Connector		
Pin	**Description**	**Function**
1	DIGIN_DI15	Digital input
2	DIGIN_DI13	Digital input
3	DIGIN_DI11	Digital input
4	DIGIN_DI9	Digital input
5	DIGIN_DI7	Digital input
6	DIGIN_DI5	Digital input
7	DIGIN_DI3	Digital input
8	DIGIN_DI1	Digital input
9	DIGIN_DI14	Digital input
10	DIGIN_DI12	Digital input
11	DIGIN_DI10	Digital input
12	DIGIN_DI8	Digital input
13	DIGIN_DI6	Digital input
14	DIGIN_DI4	Digital input
15	DIGIN_DI2	Digital input
16	DIGIN_DI0	Digital input

Allocation of the connectors



Pinout of the connectors

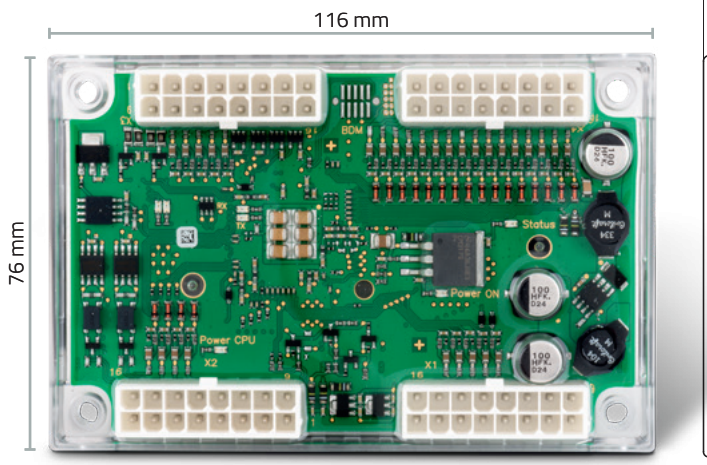


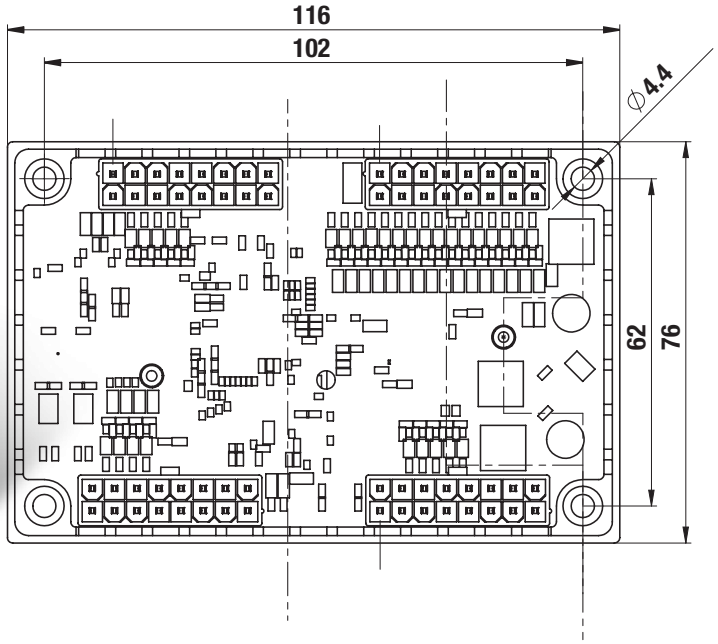
X2 Connector		
Pin	**Description**	**Function**
1	B + 2	Power Supply for outputs 4–7
2	+5V Out	+5 V / 200 mA Voltage reference
3	+10V Out	+10 V* / 150 mA Voltage reference
4	CAN0-H	CAN Bus 0 High
5	CAN0-L	CAN Bus 0 Low
6	CAN1-H	CAN Bus 1 High
7	CAN1-L	CAN Bus 1 Low
8	B + 1	Power supply for outputs 0–3
9	DIGOUT_HSD7	Digital output max 2 A
10	DIGOUT_HSD6	Digital output max 2 A
11	DIGOUT_HSD5	Digital output max 2 A
12	DIGOUT_HSD4	Digital output max 2 A
13	DIGIN_DI21	Digital input
	DIGOUT_HSD3	Digital output max 2 A
14	DIGIN_DI20	Digital input
	DIGOUT_HSD2	Digital output max 2 A
15	DIGIN_DI19	Digital input
	DIGOUT_HSD1	Digital output max 2 A
16	DIGIN_DI18	Digital input
	DIGOUT_HSD0	Digital output max 2 A

X1 Connector		
Pin	**Description**	**Function**
1	B + 4	Power supply for outputs 12–15
2	GND	Ground
3	ANA4	Analogue input 0–10 V
4	ANA3	Analogue input 0–10 V
5	ANA2	Analogue input 0–10 V
6	ANA1	Analogue input 0–10 V
7	ANA0	Analogue input 0–10 V
8	B + 3	Power Supply for outputs 8–11
9	DIGOUT_HSD15	Digital output max 2 A
10	DIGOUT_HSD14	Digital output max 2 A
11	DIGOUT_HSD13	Digital output max 2 A
12	DIGOUT_HSD12	Digital output max 2 A
13	DIGOUT_HSD11	Digital output max 2 A
14	DIGOUT_HSD10	Digital output max 2 A
15	DIGOUT_HSD9	Digital output max 2 A
16	DIGOUT_HSD8	Digital output max 2 A

* The 10 V reference is only available when Vsupply is greater than 15 V.

Dimensions





Order information

Available References	Part number WE ICS
ICCS CAN Controller 64 P (24 V version)	ICS-97194
ICCS CAN Controller 64P (12 V version)	ICS-97196

Mating connector	Part number WE eiSos
Housing: Female Dual Row Plug WR-MPC4, 16 Pins, Pitch 4.2 mm	649 016 113 322
Crimp contact: WR-MPC4, AWG 16	649 005 137 22
Crimp contact: WR-MPC4, AWG 24-18	649 006 137 22
Crimp contact: WR-MPC4, AWG 28-22	649 007 137 22

For 100 pieces packages, please add „DEC" at the end of the reference.

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