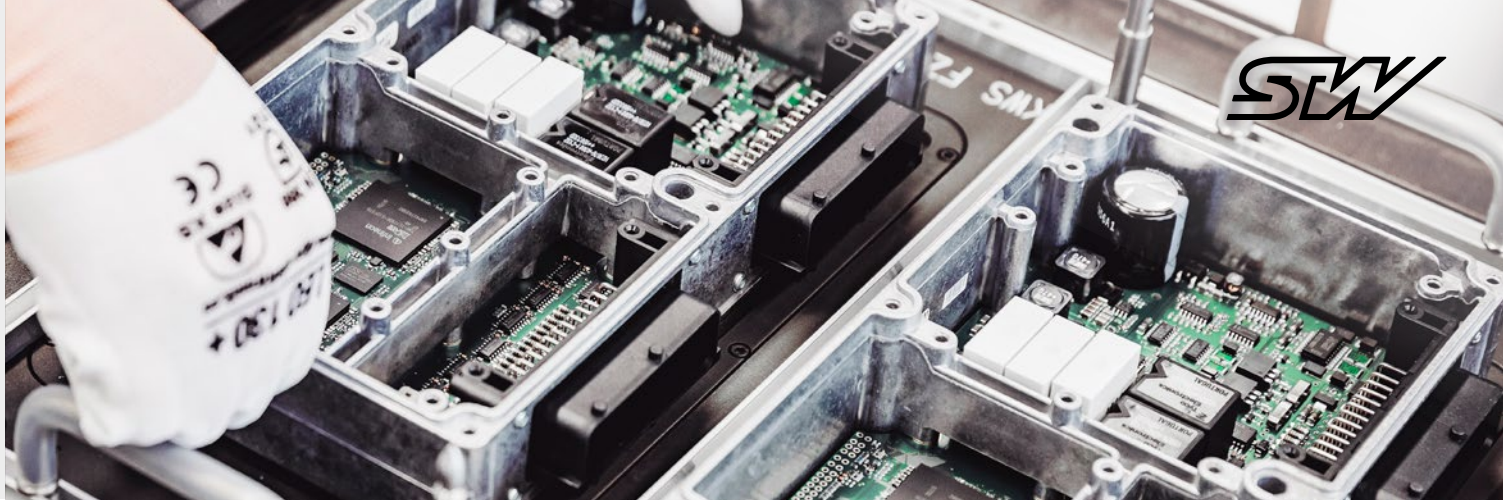

ESX-4CS-GW

ESX Control units

KEY FEATURES

- Control specially designed for use in harsh mobile applications
- Flexible programming in C or in logi.CAD IEC 61131-3
- Designed as a communication node between the different networks in mobile work machines.

TECHNICAL DATA

- Aurix TC299 Multicore 32 bit, 300 MHz
- 2 MB RAM internal
- 8 MB Flash internal, 16 MB Flash external
- 32 kB EEPROM
- 6 CAN interfaces, 1 RS232 interface, up to 5 Ethernet interfaces and 1 LIN
- 12 inputs (SENT support)
- 6 outputs

ACCESSORIES

- Debug Adapter
- Debugger
- Compiler
- StarterKit
- Component Deployment for C and logi.CAD
- Mating Plug
- Lifecycle Tool openSYDE

Sensor-Technik Wiedemann GmbH

Am Bärenwald 6
87600 Kaufbeuren

+49 8341 9505-0
info@sensor-technik.de
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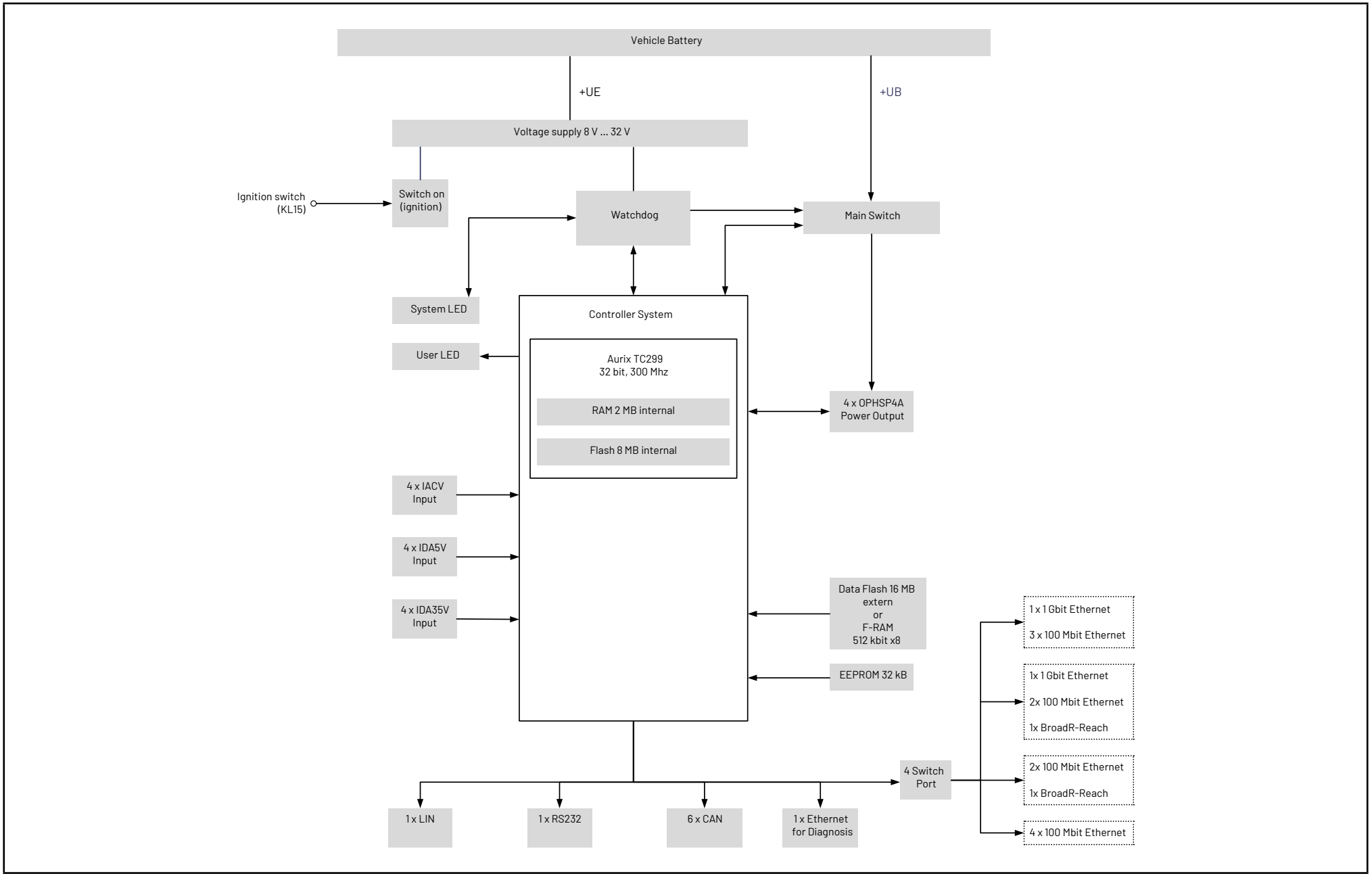
BLOCK DIAGRAM



TECHNICAL DATA

Processor and memory

Type	Properties	Features
Aurix TC299	32 bit, Multicore	@ 300 MHz
RAM	2 MB internal	
Flash	8 MB internal	
Data Flash	16 MB external	
FRAM	512 kbit x 8	
EEPROM	32 kB	

Communication Interfaces

Type	Max. Quantity.	Configuration
CAN	6	CAN 2.0 B, Low-/High-Speed max 1 Mbit/s
		Opt. CAN 1: Wake-up functionality
		Opt. CAN 4: isolated
RS232	1	Baud rate up to 115 kbit/s
Ethernet	Up to 5	ETH1 _P1...P4: Speed up to 100 Mbit/s
		Opt. ETH 1_P4: Speed up to 1 Gbit/s (with M12 conector)
		ETH2: Speed up to 100 Mbit/s, only for diagnosis
		Opt. BroadR-Reach
LIN	1	LIN 2.2 A

Inputs

Type	Max. Quantity.	Configuration	Measurement	Options / Dependencies
Analog Input IACV	4	Voltage	0 ... 12 V	
		Current	4 ... 20 mA	
		Digital	Voltage	Cut-off frequency: 100 Hz
		Edge Evaluation	Events, rising/ falling edges	
Multi Function Input IDA5V	4	Analog Voltage	0 ... 5 V	e.g. PT1000, KTY
		Digital	Low-Active	Programmable pull-up resistor 6 k8 Ω to 5 V
			High-Active	External pull-down resistor required
		Frequency	0.6 Hz ... 20 kHz	
		Edge Evaluation	Events, rising/ falling edges	
		SENT-Interface		

TECHNICAL DATA

Inputs

Type	Max. Quantity.	Configuration	Measurement	Options / Dependencies
Multi Function Input IDA35V	4	Analog Voltage	0 ... 35 V	
		Namur Sensors		
		Digital	Low-Active High-Active	Programmable pull-up (1k1 Ω to 8.5 V) or pull-down resistors (1k to GND)
		Frequency	0.6 Hz ... 20 kHz	a maximum of 8 Inputs can be used for the function "Average Frequency Measurement"
		Edge Evaluation	Events, rising/ falling edges	Pairs of 2 inputs can be connected to incremental encoder inputs
		Incremental Input	Position or angle change	

Outputs (All outputs are short circuit protected)

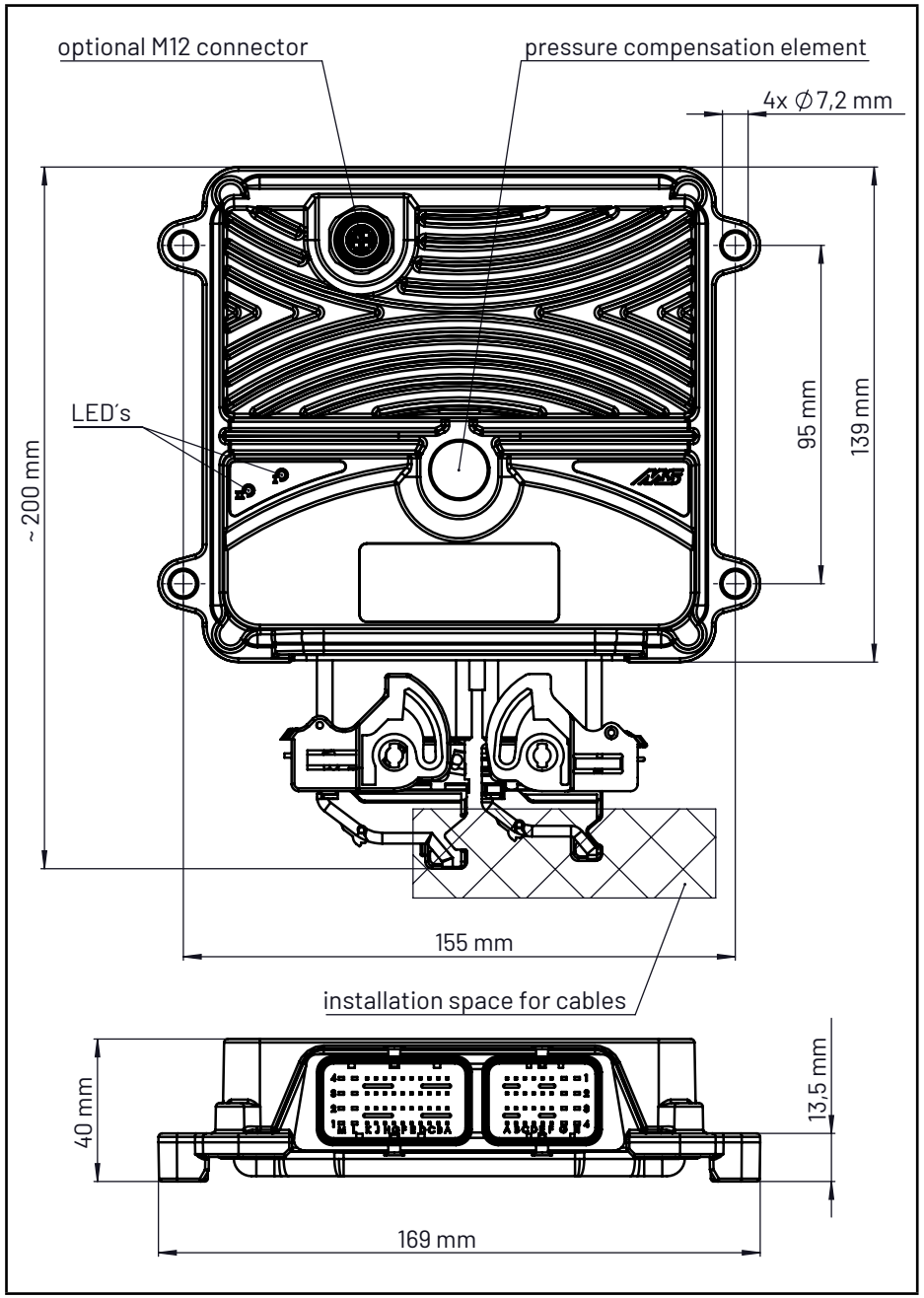
Type	Max. Quantity	Configuration	Range	Property	Features
Digital-/ PWM-Output OPHSP4A	4	Digital	0 ... 4 A	Current On/Off	High Side Switch Current control with 2 % accuracy Digital feedback Cut-off at overcurrent (> 7.5 A ±20 %) Several outputs in parallel circuit for up to 12 A
		PWM		0 ... 100 % max. 500 Hz	
Sensor Supply UExt	2	Programmable	5 ... 12 V	100 ... 250 mA	
		Fixed Voltage	5 V	Max. current 250 mA	

TECHNICAL DATA

System Data

Type	Property	Values
Supply Voltage	Direct Current (DC)	8 ... 32 V
Power Consumption	Without external load	< 400 mA at 8 V supply Voltage < 100 mA at 32 V supply Voltage
	Standby (ignition off)	< 1 mA
	Maximum load current	12 A
Temperature	Chassis Temperature	–40 °C ... +85 °C (–40 °F ... +185 °F) variant without M12 connector
		–25 °C ... +85 °C (–13 °F ... +185 °F) variant with M12 connector
Connector	Molex CMC	80 pin, 8-pole M12 connector x-coded
Indicators	2 LED (dual color)	1 x for system status and 1 x freely programmable
Housing	Die-cast aluminum	GORE-TEX® Membrane for pressure equalization
Dimensions	Standard Variant	169 mm x 139 mm x 40 mm
Weight		About 0.57 kg (1.25 lbs)
Degree of Protection	Variant without M12 connector	IP6k9k
	Variant with M12 connector	IP6k7

TECHNICAL DRAWING

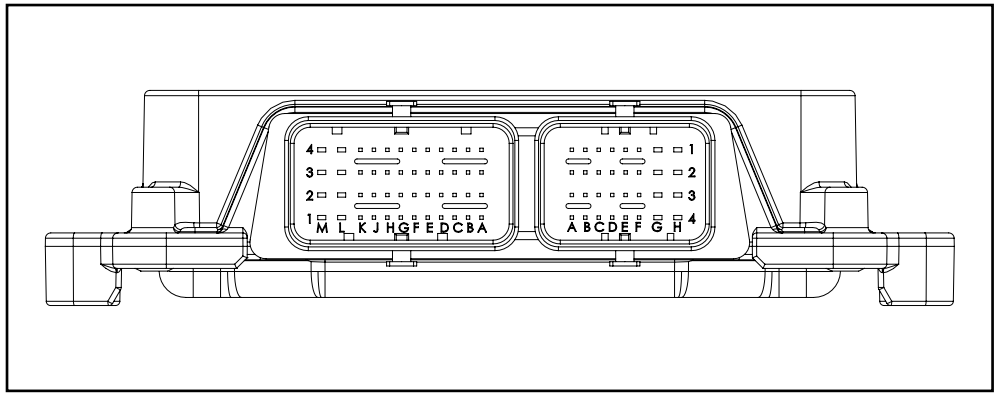


PIN ASSIGNMENT

Pin Assignment 48 Pin Connector:

Pin	Description
48A1	CAN bus 2 low
48A2	CAN bus 2 high
48A3	CAN bus 1 low
48A4	CAN bus 1 high
48B1	LIN 12 V power supply
48B2	LIN Bus
48B3	Ethernet 1_P1 (BRR+)
48B4	-
48C1	Ethernet 1_P3 (Rx-)
48C2	CAN bus 6 low
48C3	Ethernet 1_P1 (BRR-)
48C4	Ethernet 1_P1 (Tx+)
48D1	Ethernet 1_P3 (Rx+)
48D2	CAN bus 6 high
48D3	NC or isolated CAN bus 4 GND
48D4	Ethernet 1_P1 (Tx-)
48E1	Ethernet 1_P3 (Tx-)
48E2	RS232 (Tx)
48E3	CAN bus 4 low or isolated CAN bus 4 low
48E4	Ethernet 1_P1 (Rx+)
48F1	Ethernet 1_P3 (Tx+)
48F2	RS232 (Rx)
48F3	CAN bus 4 high or isolated CAN bus 4 high
48F4	Ethernet 1_P1 (Rx-)
48G1	Ethernet 1_P2 (Rx-)
48G2	CAN bus 5 low
48G3	CAN bus 3 low

Pin	Description
48G4	Ethernet 2 (Rx+)
48H1	Ethernet 1_P2 (Rx+)
48H2	CAN bus 5 high
48H3	CAN bus 3 high
48H4	Ethernet 2 (Rx-)
48J1	Ethernet 1_P2 (Tx-)
48J2	Ethernet 1_P4 (Rx-) (if M12 Connector is not connected)
48J3	Ethernet 1_P4 (Tx+) (if M12 Connector is not connected)
48J4	Ethernet 2 (Tx+)
48K1	Ethernet 1_P2 (Tx+)
48K2	Ethernet 1_P4 (Rx+) (if M12 Connector is not connected)
48K3	Ethernet 1_P4 (Tx-) (if M12 Connector is not connected)
48K4	Ethernet 2 (Tx-)
48L1	-
48L2	-
48L3	-
48L4	-
48M1	GND
48M2	UB: Power supply pin for hardware drivers of the outputs
48M3	UE: Power supply electronic
48M4	Ingnition (KL15)



Pin Assignment 32 Pin Connector:

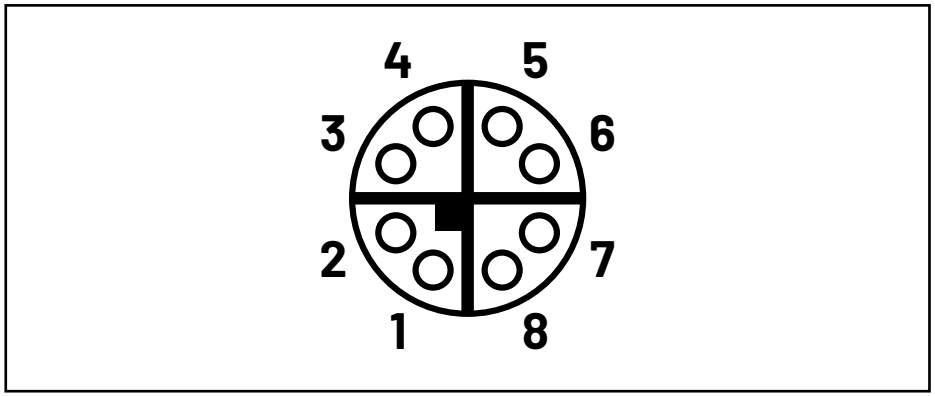
Pin	Description
32A1	CAN bus 1 high
32A2	CAN bus 1 low
32A3	CAN bus 2 high
32A4	CAN bus 2 low
32B1	Analog input IACV_02
32B2	Multi function input IDA35V_04
32B3	Multi function input IDA5V_01
32B4	Sensor Supply 5V
32C1	Multi function input IDA5V_02
32C2	Analog input IACV_01
32C3	Sensor Supply 5-12V
32C4	Analog GND
32D1	Multi function input IDA35V_04
32D2	Analog GND
32D3	Analog GND
32D4	Analog input IACV_04
32E1	Sensor Supply 5-12V
32E2	Sensor Supply 5V
32E3	Analog input IACV_03

Pin	Description
32E4	Multi function input IDA5V_03
32F1	Multi function input IDA35V_04
32F2	Multi function input IDA5V_04
32F3	Multi function input IDA35V_04
32F4	Ingnition (KL15+)
32G1	Digital-/PWM-Output OPHSP4A_03
32G2	Digital-/PWM-Output OPHSP4A_04
32G3	UB: Power supply pin for hardware drivers of the outputs
32G4	GND
32H1	Digital-/PWM-Output OPHSP4A_01
32H2	Digital-/PWM-Output OPHSP4A_02
32H3	UB: Power supply pin for hardware drivers of the outputs
32H4	UE: Power supply electronic

PIN ASSIGNMENT

Pin Assignment M12 Connector:

Pin	Description
1	Ethernet 1_P4 (D0+)
2	Ethernet 1_P4 (D0-)
3	Ethernet 1_P4 (D1+)
4	Ethernet 1_P4 (D1-)
5	Ethernet 1_P4 (D3+)
6	Ethernet 1_P4 (D3-)
7	Ethernet 1_P4 (D2+)
8	Ethernet 1_P4 (D2-)



QUALIFICATION

EMC industrial (CE)	This chapter is not fully available at this state of the ESX-4CS-GW development.
EMC automotive	This chapter is not fully available at this state of the ESX-4CS-GW development.
Electrical tests	This chapter is not fully available at this state of the ESX-4CS-GW development.
Climatic and mechanical tests	This chapter is not fully available at this state of the ESX-4CS-GW development.