

MMS

Safety controller SIL2 according to IEC 61508 for mobile machines

The MMS safety controller enables manufacturers to easily implement the latest safety requirements for mobile machines. It provides functional safety in accordance with Safety Integrity Level (SIL)2 according to IEC 61508 or equivalent.

The operating system ensures a clear separation between standard machine functions and safety functions.



Highlights

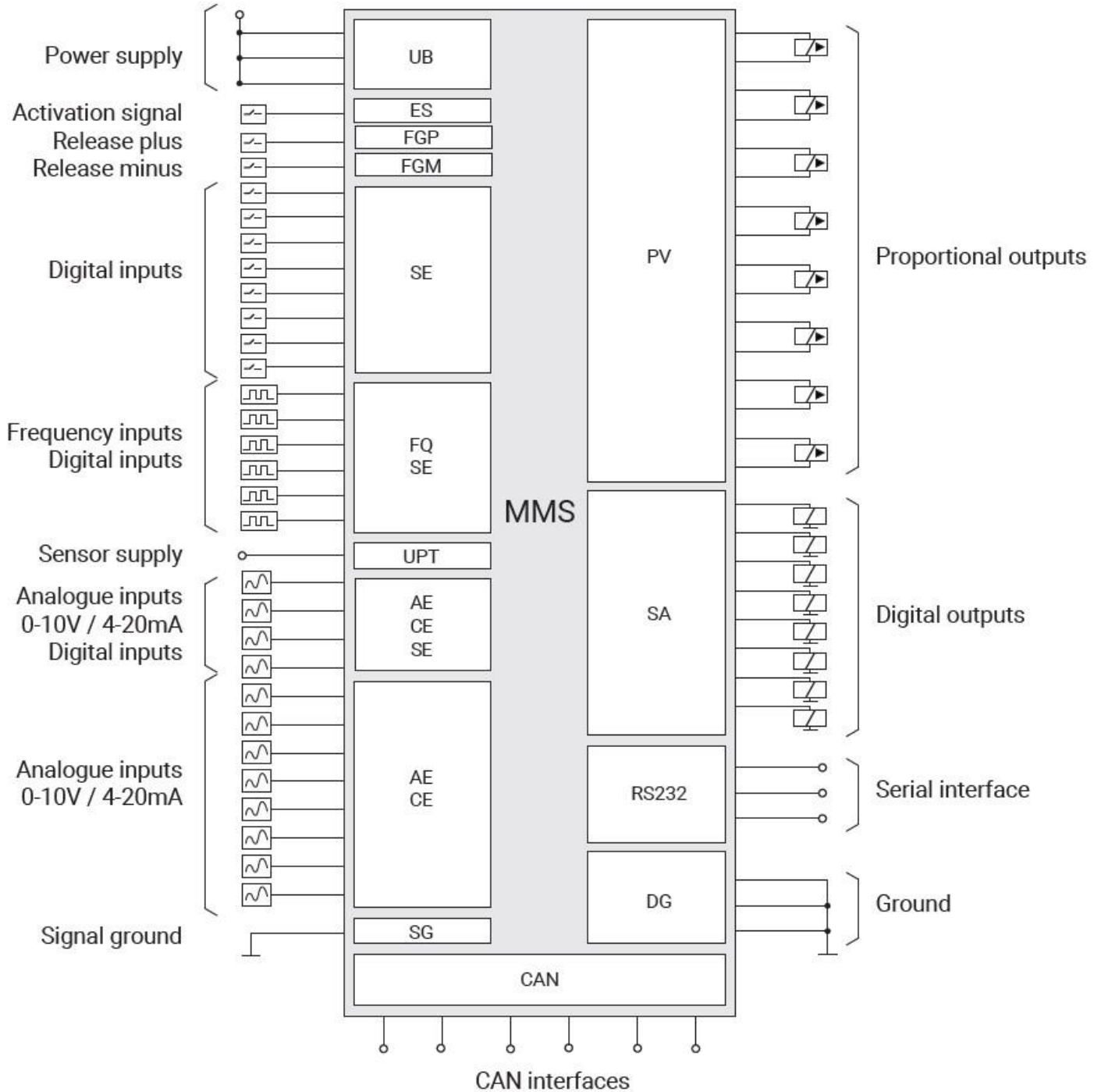
- Redundant structure with two powerful microcontrollers
- Re-measurement and diagnosis for all outputs
- Modular extendable via CAN-Bus
- Enable input and release inputs for direct shut down of the microcontroller and safety relay
- Customer and application specific software based on the Völkel platform
- Parametrization and diagnosis via ConDoc™
- Robust and outdoor-suitable housing

Modular communication



The networked system consisting of one **basic ECU (Master)** and up to five **expansion modules (Slaves)** can be easily scaled for the needed in- and outputs.

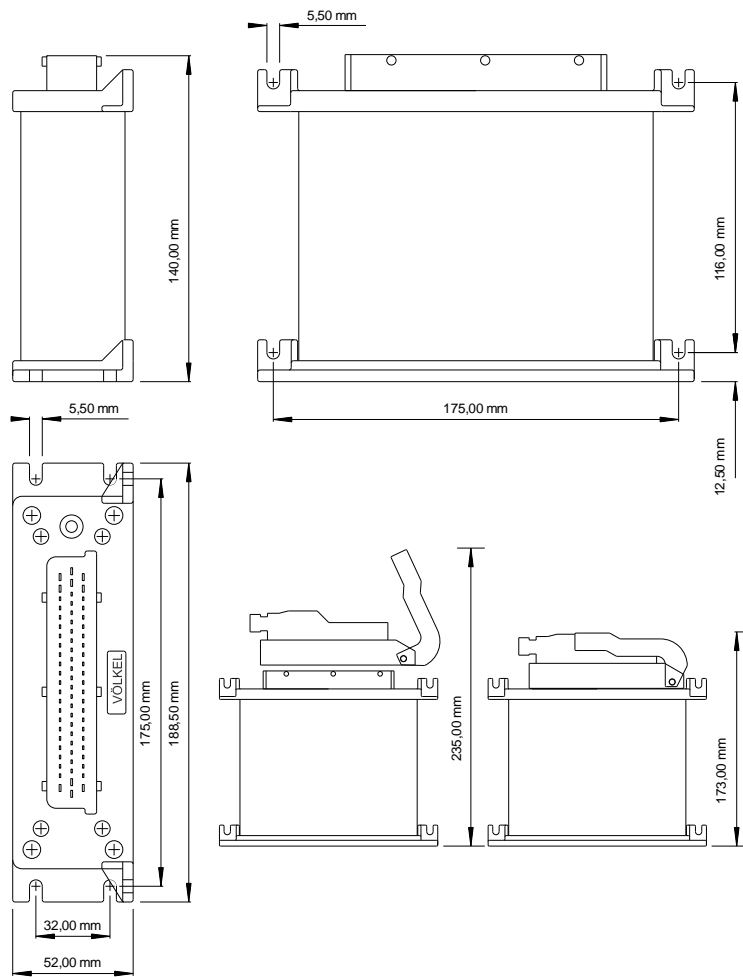
Connection diagram



Technical data:

Inputs	Digital inputs	Number	8 (+ 6 ⁽¹⁾ + 4 ⁽²⁾)
		Input resistance	4x adjustable Pull-Down/Pull-Up 4x Pull-Down
		Switching threshold	adjustable 0...32V
	Frequency inputs	Number	6
		Input resistance	Groupwise adjustable Pull-Down/Pull-Up
		Switching threshold	Adjustable -0,2...18V
		Range	Max. 4kHz
		Optional	⁽¹⁾ configurable as digital input
	Analogue inputs	Number	12
		Voltage inputs	Up to 12x 0...10V
		Current inputs	Up to 12x 4...20mA
		Resolution	10 Bit
	Optional	⁽²⁾ 4x configurable as digital input	
Outputs	Digital outputs	Number	8 (+8 ⁽³⁾)
		Output current	max. 4A each
	Proportional outputs	Number	8
		Output current	max. 3A each
		Optional	⁽³⁾ configurable as digital output
	Communication	CAN	Number
Transmission rate			CAN 2.0B (max. Baudrate 1Mbit/s)
Terminal resistance			Each configurable
RS232		Number	1
	Transmission rate	Max. 115,2kBit/s	
Environment	Supply	8 ... 32V	
	Operating temperature	-40 ... 85 °C (Housing temperature)	
Housing	Dimensions	(W/H/D) 188,5mm x 140mm x 52mm (without connector)	
	Weight	ca. 900g	
	Material	Aluminium housing with DAE	
	Connector	AMP-TE MIX70P, 70 pin	
	Protection class	IP65, IP69 (DIN 40050, DIN EN 60529) IP69K (ISO 20653)	
Protection types	Safety	Components	Two redundant microcontrollers with mutual monitoring and microcontroller watchdog each
			Separate voltage control
			Separate clock generation
			External safety shut down of the outputs (FGP/FGM)
			Reverse polarity protection
		MTTFD	45 years
	EMC	Road vehicles	Directive 2014/30/EU, UN/ECE-R10, ISO 10605, ISO 7637-1, ISO 7637-2, ISO 7637-3
		Construction machinery	DIN EN 13309
		Agricultural and forestry machinery	Directive 2009/64/EG, DIN EN ISO 14982
		Industrial use	Directive DIN EN 61000-6-2, DIN EN 61000-6-4
	Mechanical, climatic resilience	Cold	DIN EN 60068-2-1
		Dry heat	DIN EN 60068-2-2
		Oscillation	DIN EN 60068-2-6
Temperature changes		DIN EN 60068-2-14	
Shock		DIN EN 60068-2-27	
Continuous shock		DIN EN 60068-2-29	
Damp heat		DIN EN 60068-2-30	
Shocks due rough handling		DIN EN 60068-2-31	

Overall dimensions



Structure diagram

