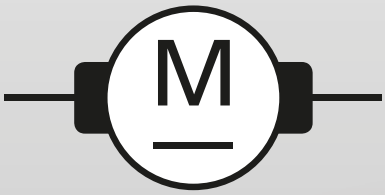
Pioneering new technologies

Sensor-Technik Wiedemann GmbH
Mobile Controllers and Measurement Technologies

Technical Data
Motor Bridge ESX-MBC



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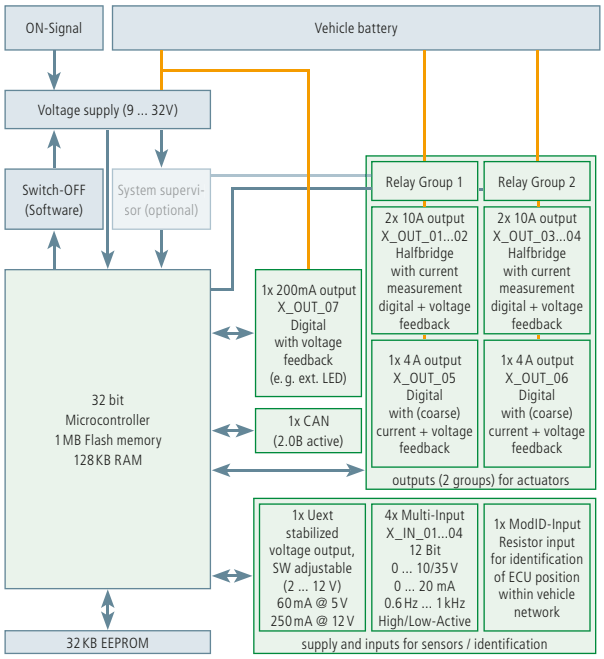
ESX®-MBC Motor Bridge Module

The ESX-MBC is a J1939 module for control of electric motors and other actuators in the power range up to approximately 200 W, that is suitable for rough environments as in agricultural and construction machinery applications. The module offers 4 fast PWM half bridges (each 10 A) with current measurement and two additional digital power outputs (each 4 A). Each half-bridge pair, and one digital output, are supplied over a separate safety relay (max.15 A). The module includes 4 multi-function inputs, a module identification input, a low current digital output and a stabilised sensor supply. All analog signals are measured with 12 bit resolution.

ESX®-MBC - Technical Data

Processor System	
Processor	32 Bit Controller, STM32F205 120 MHz
SRAM	128 KByte
Flash Memory	1 MByte
EEPROM	32 KByte
Temperature measurement	Internal for CPU and PCB
Interfaces	
CAN	1 x CAN 2.0 B, Low- / High-Speed up to 1 Mbit/s
Inputs/Outputs	
Multi-function Inputs	**4 multi-function inputs, software configurable as:** Digital inputs (high / low active) Frequency inputs (0,6 Hz … 1 kHz) Voltage input (0 … 10 V) Voltage input (0 … 35 V) Current input (0 … 20 mA)
Resistance input	**1 x** Module identification
PWM outputs with current feedback	**4 x 10 A** PWM half-bridges, PWM frequency up to 20 kHz, short circuit protected, diagnosable
Digital outputs	**2 x 4 A** digital outputs, short circuit protected, diagnosable, current feedback **1 x 200 mA** digital output, short circuit protected, diagnosable
Stabilised voltage supply	**1 x 5 … 12 V** (max. load 60 … 250 mA), short circuit protection
System data	
Supply voltage	9 … 32 V DC
Max. output current	30 A
Mechanical Data	
Connector	42 pol. automotive connector (Tyco Electronics)
Housing	IP67
Weight	Approx. 0,33 kg (0.73 lbs)
Dimensions	Approx. 174 mm x 117 mm x 36 mm (6.85" x 4.61" x 1.42")
Environmental	
Specification	Tested according to standards for automotive applications, agricultural and construction machinery, CE conformity.
Temperature Range	Operating: -40°C … +85°C (-40°F … +185°F) (Derating dependend on operating condition)

Block diagram



Pin Layout

Function	Pin(s)	Applicable GND Pin
On-Signal	18	–
Electronic Supply	5	33
Dout 200mA X_OUT_07	19	–
Power UB1	1	29
PWM Out 10A X_OUT_01	15	30 + 31
PWM Out 10A X_OUT_02	2 + 16	3 + 17
Dout 4A X_OUT_05	4	32
Power UB2	14	42
PWM Out 10A X_OUT_03	28	40 + 41
PWM Out 10A X_OUT_04	13 + 27	12 + 26
Dout 4A X_OUT_06	25	39
Sensor supply	6 + 7	–
UIN/IIN/DIN/RPM X_IN_01	20	34
UIN/IIN/DIN/RPM X_IN_02	21	35
UIN/IIN/DIN/RPM X_IN_03	22	36
UIN/IIN/DIN/RPM X_IN_04	23	37
ModIn 1	24	38
CAN1_H	8 + 10	–
CAN1_L	9 + 11	–

JPT contacts (JPT), max. 15 A, ø 2.5 mm²

MicroTimer-II contacts (MT-II), max. 6 A, ø 1.0 mm²

Sensor-Technik Wiedemann GmbH
Steuer- und Regelelektronik
Am Bärenwald 6
87600 Kaufbeuren
Germany
Telephone +49 8341 9505-0
Telefax +49 8341 9505-55
E-mail info@sensor-technik.de
Internet www.sensor-technik.de

STW-Technic, LP
Mobile Controllers and Measurement Technologies
3000 Northwoods Parkway, Suite 240
Peachtree Corners, GA 30071, USA
Telephone +1 770 242-1002
Telefax +1 770 242-1006
E-mail sales@stw-technic.com
Internet www.stw-technic.com

Sensor-Technik UK Ltd.
Unit 21M
Bedford Heights Business Centre
Manton Lane, Bedford
MK41 7PH, UK
Telephone +44 1234 270770
Telefax +44 1234 348803
E-mail info@sensor-technik.co.uk
Internet www.sensor-technik.co.uk

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