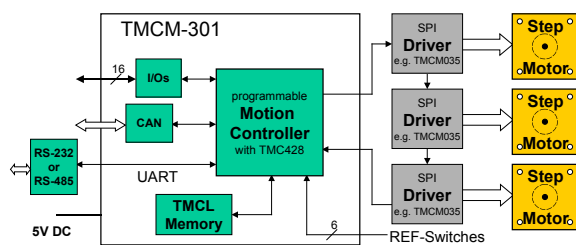# TMCM-301

**3-Axis
Controller
for SPI Drivers**

INFO The TMCM-301 is a triple axis stepper motor controller module for external power drivers with SPI interface. With its very small size it is dedicated to embedded applications. The board can be connected to a baseboard or customized electronics with a pin connector. The TMCM-301 comes with the PC based software development environment TMCL-IDE for the Trinamic Motion Control Language (TMCL). Using predefined TMCL high level commands like „move to position" or „constant rotation" rapid and fast development of motion control applications is guaranteed. The TMCM-301 can be controlled via its serial UART interface (e.g. using a RS-232 or RS-485 level shifter) or via CAN. A user TMCL program can be stored in the on board EEPROM for stand-alone operation. The firmware of the module can be updated via the serial interface. Communication traffic is kept very low since all time critical operations, e.g. ramp calculation, are performed on board.

MAIN CHARACTERISTICS

ELECTRICAL DATA
· 5V DC logic supply voltage

SUPPORTED MOTORS/ DRIVERS
· two-phase bipolar motors using external SPI drivers (e.g. TMCM-035 or TMC249)

INTERFACE
· UART (RS-232, RS-485) or CAN 2.0b host interface

· inputs for reference and stop switches

· general purpose analog and digital I/Os

FEATURES
· up to 64 times microstepping

· memory for 2048 TMCL commands

· automatic ramp generation in hardware

· on the fly alteration of motion parameters (e.g. position, velocity, acceleration)

· supports stallGuard™ option for sensor-less motor stall detection

· full step frequencies up to 20kHz

· dynamic current control

· can be adapted to any SPI driver type

SOFTWARE
· stand-alone operation using TMCL or remote controlled operation

· PC-based application development software TMCL-IDE included

OTHER
· 68 pin connector carries all signals

· RoHS compliant

· size: 80 x 50 mm²

ORDER CODE	DESCRIPTION
TMCM-301 (-option)	3-axis controller module with SPI out
Related products:	*BB-301, BB-301S, TMCM-EVAL*
OPTIONS	
H	Horizontal pin connector (standard)
V	Vertical pin connector (on request)