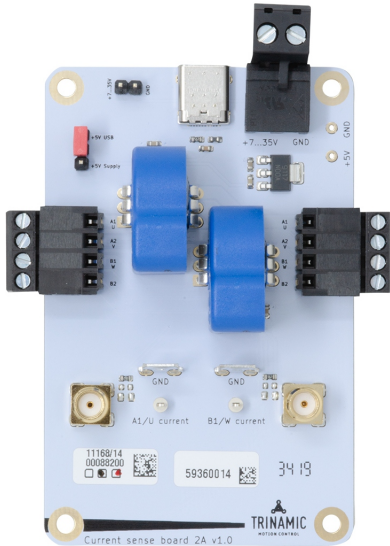


# TMCM-0013-xA

Document Revision V1.00 • 2021-Feb-03

## TMCM-0013-2A/-3A/-6A

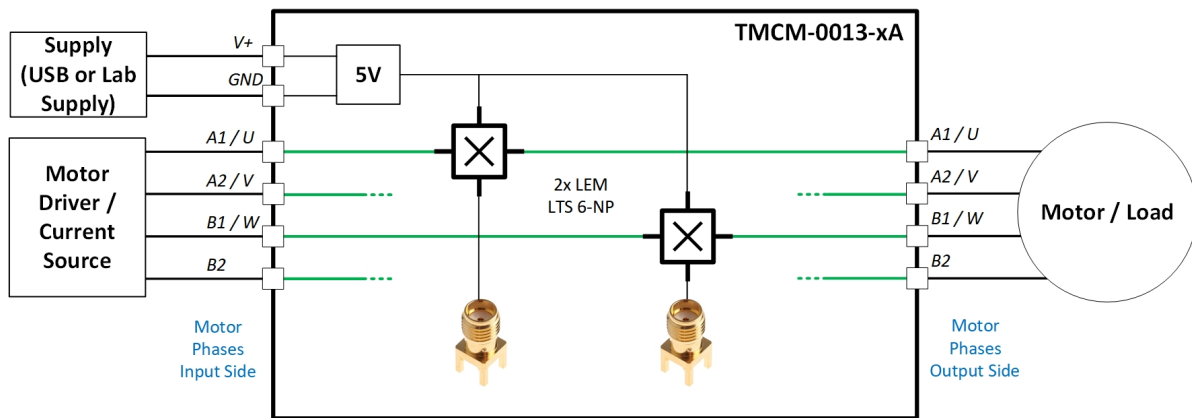


### Description

The TMCM-0013-xA boards are tools to simplify measurement and visualization of 2x motor phase currents of small electric motors such as stepper motors, BLDC motors, or DC motors without the need for an expensive current probe. They are easy to use and can be connected to typical laboratory oscilloscopes.

- Supplied via USB or dedicated laboratory power supply with +7...+35V.
- Comes in 3 different current measurement ranges (nominal range).
- Connects to a scope via SMA-2-BNC cables or standard probe clamps.
- Easy to handle screw terminals and USB-C.
- Uses galvanically isolated current transducers LEM LTS 6-NP (<https://www.lem.com/en/lts-6np>).

### Block Diagram

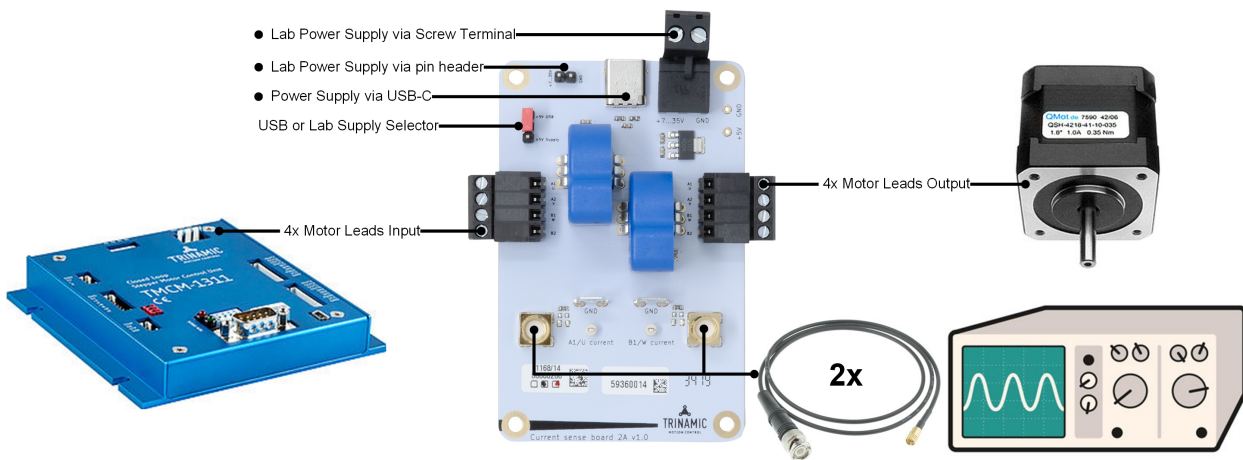


### Order Codes

Order Code	Description	Size
TMCM-0013-2A	Motor phase current measurement board, 2A linear range, 19.2A max measurement range, LEM LTS6-NP, USB-C and screw terminal (with mating plugs), SMB & soldering eyelets to connect to an oscilloscope	55x85x24 (mm)
TMCM-0013-3A	Motor phase current measurement board, 3A linear range, 19.2A max measurement range, LEM LTS6-NP, USB-C and screw terminal (with mating plugs), SMB & soldering eyelets to connect to an oscilloscope	55x85x24 (mm)
TMCM-0013-6A	Motor phase current measurement board, 6A linear range, 19.2A max measurement range, LEM LTS6-NP, USB-C and screw terminal (with mating plugs), SMB & soldering eyelets to connect to an oscilloscope	55x85x24 (mm)
TMCM-0013-CABLE	2x Shielded Cable, SMA-2-BNC Male/Male, Straight/Straight	Length = ca. 18"



## Application Wiring



## Electrical and Environmental Parameter

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage range from dedicated supply	$V_S$	7	24	35	V
USB supply voltage	$V_{USB}$		5		V
Transducer primary nominal RMS current	$I_{PN}$		2/3/6		A
Transducer primary current measuring range	$I_{Pmax}$	-19.2		+19.2	A
Output Voltage at $I_P = 0$	$V_{OUT}$	2.475	2.5	2.525	V
Output Voltage at primary current $I_P$	$V_{OUT}$	0	$2.5 \pm (0.625 \times I_P / I_{PN})$	5	V
Accuracy at $T_A = 25^\circ\text{C}$	$X$		$\pm 0.2$		%
Ambient operating temperature	$T_A$	-40		+85	$^\circ\text{C}$

( $I_P$  is the actual primary current visible at the motor inputs.)

For more information on the current transducer LTS 6-NP visit [www.lem.com](http://www.lem.com).

## Manual History

Version	Date	Author	Info
1.00	10.02.2017	SK	First release

