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Order Number: KITXMC1300IFX9201TOBO1

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Stepper motor control shield with IFX9201 and XMC1300 for Arduino

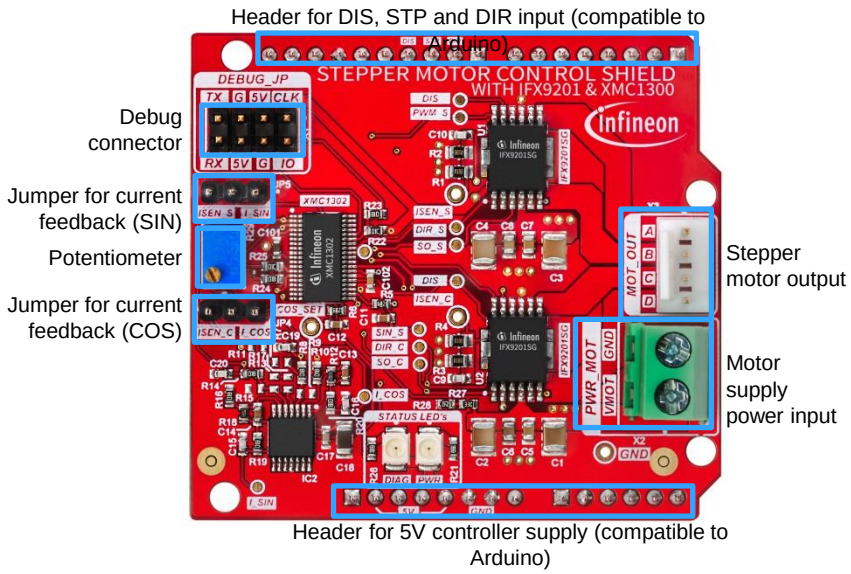
Quick Start Guide

The stepper motor control shield from Infineon Technologies is an evaluation board compatible to Arduino as well as Infineon's XMC1100 boot kit and XMC4700 relax kit for 5V shields.

The stepper control shield allows operation of a wide range of bipolar stepper motors. The current through the motor is limited so that a wide range of stepper motors can be controlled without damage. The maximum peak current is limited to 6A (average max. 2- 3A) per channel. A precise regulation loop allows to operate the motor in different modes (full step, half step, micro step).

The shield itself is controlled by a programmable XMC™ 32-bit ARM® powered MCU (XMC1300) and the current regulation is done by two IFX9201SG H-Bridges. It can be used either standalone or as a shield with an Arduino-compatible base board.

Stepper motor control shield with IFX9201 and XMC1300 for Arduino



Getting started

STEP 1

Turn the potentiometer counterclockwise as far as possible

- This ensures that the current is limited to a low value to protect the stepper motor

STEP 2

Connect jumpers

- Use a jumper each to connect
  - I_SIN to center pin
  - I_COS to center pin
- This ensures that the measurement amplifier (on the shield) is used

STEP 3

Connect motor and base board (or signals)

- Connect a bipolar stepper motor: A and B to SIN coil, C and D to COS coil
- Connect base board
  - XMC4700 relax kit for 5V shields (recommended)
  - XMC1100 boot kit
  - Arduino Uno
  - or supply 5V and control pins DIR, STP and DIS by other means

STEP 4

Program XMC1100 / XMC4700 or Arduino

- Example code which generates the required signals can be downloaded here: www.infineon.com/arduino
- Otherwise, it is possible to only control the pins:
  - DIS must be 5V level, otherwise the H-Bridges are disabled
  - STP must be a (slow) PWM signal, each rising edge will cause one step of the motor
  - DIR will control the direction (clockwise or counterclockwise)

STEP 5

Connect the power supply

- Use typ. 24V for motor supply power input

STEP 6

Carefully increase the current by turning the potentiometer in clockwise direction

- The motor should start turning. Make sure the max. current of the stepper motor is not exceeded.

Applications

- 3D printing
- Robotics
- Home Automation

Features

- Compatible with Arduino Uno as well as XMC1100 boot kit and XMC4700 relax kit for 5V shields from Infineon
- Adjustability allows control of a wide range of stepper motors

Benefits

- Simple control for stepper motors
- Adjustability features a wide range of bipolar stepper motors that can be driven
- Current limitation selectable by potentiometer
- Supports full, half and micro step mode
- Possibility to re-program on-board controller for a more individual control loop
- 24V typ. supply voltage input

Product summary

Type	Description	Ordering Code (OPN)
XMC1302-T038X0200	Industrial 32 MHz ARM® Cortex®-M0 microcontroller	XMC1302T038X0200ABXUMA1
IFX9201SG	6A general purpose H-Bridge for Industrial applications	IFX9201SGAUMA1

Useful links

- Documentation
- Source code
- DAVE™ IDP
- XMC MCU portfolio
- XMC1000 MCU family