



MC-3300 Controller for SQL Series SQUIGGLE® Motors and TRACKER™ Position Sensors

Use the full-function MC-3300 controller to easily evaluate SQUIGGLE motors and TRACKER Position Sensors. The MC-3300 controller generates ultrasonic signals to drive two SQL-1.8 SQUIGGLE motors in open-loop or closed-loop operation. It sends drive signals to the SQUIGGLE motors based on input from a PC or manual handset. The controller also accepts position input from New Scale's TRACKER position sensors or from other digital or analog position sensors.

Ideal for system evaluation and development, the MC-3300 or its MC-33DB daughter board may also be integrated directly into mid-volume OEM products.

New Scale Pathway™ Software: fast evaluation and system development

Connect the MC-3300 to a PC USB port: New Scale's powerful Pathway Software enables fast evaluation and system development. The easy to use, "point and click" user interface allows easy control. A powerful script generator allows even non-programmers to create and run automated commands and sequences for almost any motion control task. These scripts can be used for embedded system development for OEM products.

Input tables can be loaded to simulate a variety of real-time input waveforms and evaluate motor response. An optional handset can be used to control the motor manually.

Each MC-3300 controller operates one or two SQUIGGLE motors. You can manage multiple controllers simultaneously from a single New Scale Pathway Software window.

Open-loop vs. closed-loop operation

SQUIGGLE motors are open-loop devices. We recommend using a position sensor for closed-loop operation when repeatable step size, absolute position or precise velocity control is needed. The MC-3300 accepts input from TRACKER position sensors or other position sensors for closed-loop control. With the TRACKER and other digital encoders, the resolution is determined by the resolution of the encoder.

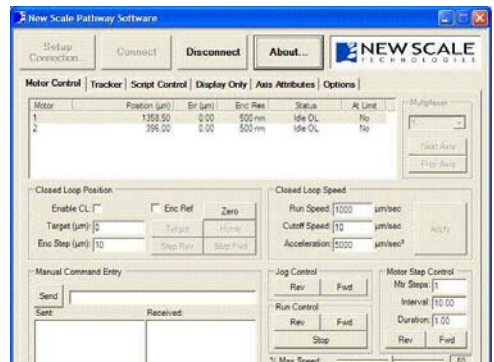
With analog position sensors, closed-loop position resolution is determined by the A/D converter, the resolution of the position sensor, and the resolution of the motor. (See application note: *Creating Closed-Loop Positioning Systems Using SQUIGGLE Motors.*)

When using the MC-3300 controller in open-loop mode, you can calibrate a motor's average travel in response to a number of drive pulses. Open-loop position resolution is listed on the motor data sheets.

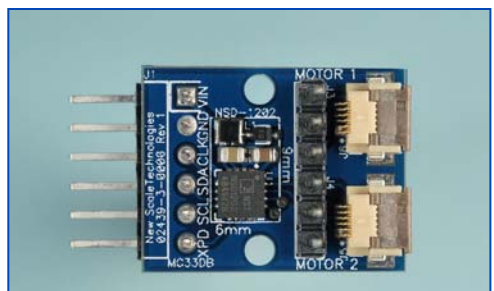
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MC-3300 Motor Controller allows OEMs to easily evaluate open-loop and closed-loop performance of SQL Series SQUIGGLE motors and TRACKER Position Sensors.



New Scale Pathway Software provided with the MC-3300 enables point-and-click control via a PC USB port. It also includes a scripting interface and **ActiveX** command library. This flexible and sophisticated development tool facilitates motor evaluation, system development and prototype test.



The MC-33DB daughter board (included with the MC-3300 controller) contains the NSD-1202 drive chip and required components to drive two SQL-1.8 SQUIGGLE motors using an I²C interface. See separate data sheets for details.



Configurable system for evaluation and OEM integration

The MC-3300 is a mother board/daughter board configuration. The mother board includes the processor, position sensor input with 12-bit A/D converter, limit switch input and PC/handset interface. The daughter board contains the motor driver ASIC, related boost circuit and two motor connectors. Both the daughter board (MC-33DB) and ASIC (NSD-1202) are also available separately for integration into OEM systems. See the separate data sheets for more information.

MC-3300 motor controller specifications

	with SQL motor
Input Power	2.8 to 5.5 V DC 1.6 W max system power*
Output Signals	Motor 1: Phase 1, Phase 2, Ground Motor 2: Phase 1, Phase 2, Ground
Computer Control	Via USB port. New Scale Pathway Software and ActiveX command library included
Position Sensor Input	Digital or Analog
A/D Converter Resolution	12 bits
Closed Loop Commands	13 commands including Speed, Move to Target, Step, Zero, Enable Reference Mark
Open Loop Commands	17 commands including Speed, Run, Stop, Timed Step(s)
Dimensions (l x w x h)	1.2 x 2.3 x 0.63 inches (29 x 58 x 16 mm)

* Each motor requires only a few hundred mW drive power. See motor data sheets for details.

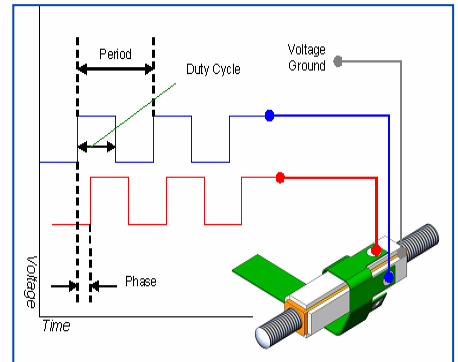
Optional handset specifications

The optional SQ-2301 handset contains a dial to vary motor speed and buttons to “jog” forward and reverse. The handset converts these inputs into ASCII commands and sends them to the MC-3300 controller. The dual SQ-2301M handset allows you to switch between two motors.

Ordering information

You can order the MC-3300 motor controller separately or as part of an evaluation pack (recommended) such as the SQL-1.8-E-SS eval pack.

Item	Part Number and Description	
Motor controller	MC-3300	Motor controller with software
Motor controller accessories (normally required)	01474-0-1003	AC power adapter, 3.3 V
	01511-3-0001	Power cable (connects AC adapter to MC-3300)
	01638-0-0000	USB cable (connects MC-3300 to PC)
Motor evaluation pack (see web for other eval packs)	SQL-1.8-E-SS	MC-3300 motor controller with AC power adapter, New Scale Pathway Software, one SQL-1.8-6-12-SS SQUIGGLE motor, connector cables
Handset (optional)	SQ-2301 (single) or SQ-2301M (dual, switching)	



MC-3300 Motor Controller generates ultrasonic signals with phase shift to drive the piezoelectric elements of SQL Series SQUIGGLE motors.



MC-3300 controller is included in the SQL-1.8-E-SS evaluation pack with one SQUIGGLE motor, AC power adapter, New Scale Pathway Software and all connector cables.



Optional SQ-2301 handset enables manual control of SQUIGGLE motors.

MC-3300-09-03-17