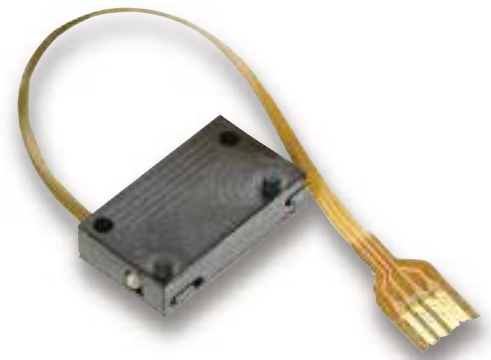


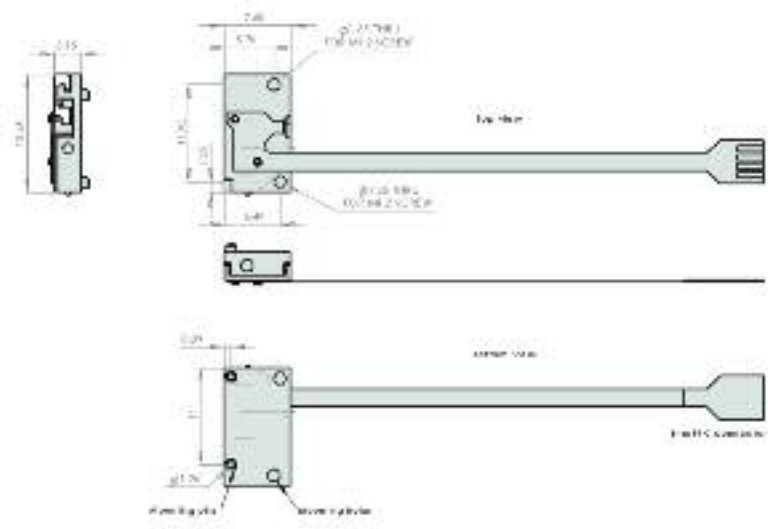
Nanomotion's Edge motor is the smallest industrial motor of its kind available in the marketplace today. Providing unlimited linear or rotary motion, the Edge motor offers extensive opportunities in applications that suit a wide range of industries. The Edge motor works with a uniquely designed, compact ASIC-based driver, and can be operated with any servo controller.



Features

The Edge can be easily integrated into most bearing structures, and is ideal for mass production opportunities.

- Extremely small dimensions
- Low power consumption
- ASIC drive and control
- Wide dynamic velocity range
- Motor weight of 0.55g
- Excellent move and settle characteristics
- Inherent brake at power off



Motor Performance Specifications

	max velocity (mm/sec)	dynamic stall force (mN)	static hold force (mN)	static stiffness (N/μ)	preload on stage (N)	Kf force constant (mn/volt commanded)	kv force (N • sec/m)
EM1-S-0	120	300	310	.075	1.8	30.5	1.6
EM1-V-0	120	300	310	.075	1.8	30.5	1.6

Note: All motor performance data is based on using Nanomotion ceramic motors and amplifiers

Environmental

Maximum Velocity: 120 [mm/sec]
 Dynamic Stall Force: 300 [mN]
 Static Holding Force: 300 to 320 [mN] (reference value)
 Non-energized Stiffness: 0.06 to 0.09 [N/μ]
 Nominal Preload on Stage: 1.65 to 2.0 [N]
 Kf: 30.5 mN/VoH command with AB5 driver (+/-15% tolerance)
 40.6 mN/VoH command with AB1 driver (+/-15% tolerance)

Kfv: -1.6307 Nsec/m
 Offset: 2-3 [V] (driver dependent)
 Attainable Resolution: better than 100 nm
 Nominal Lifetime: 20,000 hours under nominal operating conditions

Nanomotion's ASIC driver can support the Edge motor working in either the traditional AB1A mode or AB5 mode (with linear voltage to velocity profile). The AB1A mode can support up to two motors while the AB5 mode will support one Edge motor.

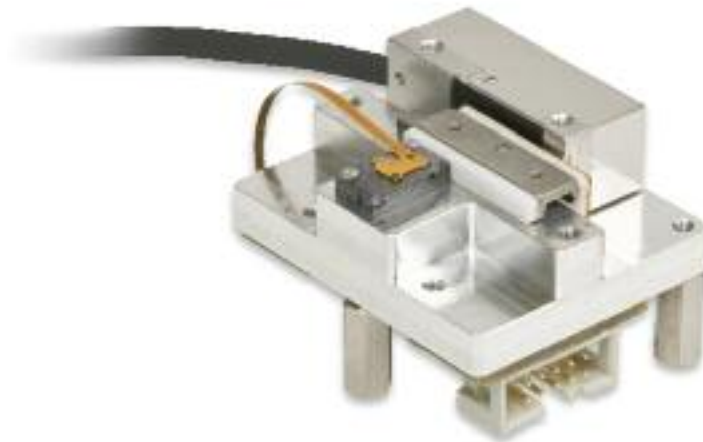
The ASIC driver has specific I/O for enable and fault functionality. The driver operates as a slave in the IIC protocol. The communication is performed by exchanging messages between the master and the slave. The master initiates both types of messages:

- 1.) Master>Slave: the master sends a message to the slave.
- 2.) Slave>Master: The slave sends a message to the master.



Features

- ASIC based driver
- Up to (2) Edge motors on an axis
- Dual axis for (1) Edge motor per axis
- IIC communication channel
- Available with a mother board for $\pm 10\text{v}$ analog input
- Small form factor with either a header to mother board or direct FPC connection to the motor
- Supply voltage of 3.3v to 4.2v



Operating Specifications

Power Input:	3.3 to 4.2V direct to
Max Motor Output:	12Vrms
Operating Temperature:	-40°C to 70°C
Storage Temperature:	-40°C to 80°C
Operating Humidity:	Up to 80% non-condensing