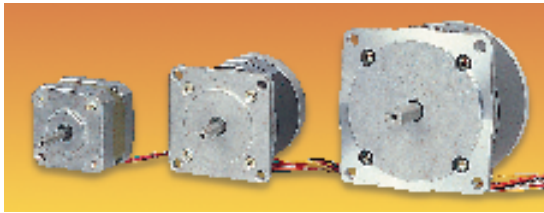


## Hybrid 1.8° Step Angle



Size 17 Body: H = 42, W = 42, D = 33 Shaft: 24 5.0 dia  
 Size 23 Body: H = 57.2, W = 57.2, D = 51 Shaft: 20.6 6.35 dia  
 Size 34 Body: H = 82, W = 82, D = 61 (93, 586-419) Shaft: 30.5 9.52 dia

- 4 phase hybrid construction gives a much higher working torque than permanent magnet types.
- Very high resolution 1.8° step angle
- 6 and 8 leads – can be bipolar or unipolar driven
- Model 713-4423 manufactured with rear shaft

Rated Voltage	Rated Current	Resistance Per Phase (Ω)	Inductance Per Phase (mH)	Detent Torque (mNm)	Holding Torque (mNm)	Step Angle	Body Size	Order Code
12V	0.16A	75	60	6	54	1.8°	17	586-389
5V	1.00A	5	9.5	60	500	1.8°	23	586-390
12V	0.60A	20	35	60	550	1.8°	23	713-4423
3V	1.70A	1.8	10	100	1200	1.8°	34	586-407
2.5V	4.60A	0.55	16	100	2300	1.8°	34	586-419
2V	7.0A	0.31	1.65	180	3000	1.8°	34	713-4435

FOR SUITABLE STEPPER MOTOR CONTROLLERS SEE PAGE 1048

FM33X

Body Size	Holding Torque (mNm)	Order Code	1+	5+	10+	25+
17	54	<b>586-389</b>				
23	500	<b>586-390</b>				
23	550	<b>713-4423</b>				
34	1200	<b>586-407</b>				
34	2300	<b>586-419</b>				
34	350	<b>713-4435</b>				

## Hybrid, High Torque 1.8° Step Angle

## SANYO DENKI



Size 17 Body: H = 42, W = 42, D = 32 (41, 720-460) Shaft: 24 5 dia.  
 Size 23 Body: H = 56, W = 56, D = 53.8 Shaft: 21 6.35 dia.  
 Size 24 Body: H = 82, W = 60, D = 53.8 (85.8, 635-236)  
 Size 34 Body: H = 82, W = 82, D = 62 (92.2, 635-248, 25.9, 635-250) Shaft: 30 12 dia., Keyway L = 25, W = 4, D = 2.5

- 2 phase hybrid rare earth magnet technology offering 15% to 20% more torque than standard hybrid types
- Improved high speed operation, low noise and low vibration
- Very high positional accuracy, designed for micro-stepping
- Can be unipolar or bipolar driven (bipolar only, 720-495, 635-248, 635-250)
- Size 24 motors are available with integrated connector for ease of assembly, crimps and matching socket supplied

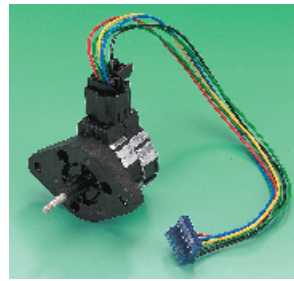
Rated Voltage	Rated Current	Resistance Per Phase (Ω)	Inductance Per Phase (mH)	Holding Torque (mNm)	Step Angle	Body Size	Order Code
3.15V	1A	3.15	2.8	166	1.8°	17	720-458
3.6V	1.2A	3	4.3	264	1.8°	17	720-460
3.2V	2A	1.6	3.8	833	1.8°	23	720-483
4V	2A	2	3.6	1170	1.8°	24	635-224
5.2V	2A	2.6	5.6	2100	1.8°	24	635-236
2.4V	4A	0.6	3.5	2745	1.8°	34	720-495
2.8V	4A	0.7	5.7	4903	1.8°	34	635-248
3.6V	4A	0.9	8.1	6864	1.8°	34	635-250

FOR SUITABLE STEPPER MOTOR CONTROLLERS SEE PAGE 1048

FM56

Body Size	Holding Torque (mNm)	Order Code	1+	5+	10+
17	166	<b>720-458</b>			
17	264	<b>720-460</b>			
23	833	<b>720-483</b>			
24	1170	<b>635-224</b>			
24	2100	<b>635-236</b>			
34	2745	<b>720-495</b>			
34	4903	<b>635-248</b>			
34	6864	<b>635-250</b>			

## Linear Actuating



L = 36, Ø = 36, Shaft 21.5 6 Ø with M3 thread on last 4mm

Linear travel per step 0.033mm  
 Resistance per coil 120Ω  
 Maximum travel 8.0mm

- ## Burgess
- Linear actuating stepper motor for applications where an accurate but easily controlled linear movement is required
  - Robust permanent magnet tin can construction
  - 4 phase, bipolar driven
  - 21.5mm shaft with further 8mm travel
  - Complete with 100mm of cable terminated with 6 way socket
  - For suitable driver board see Order Code 318-7585 Page 1047

Dynamic force (duty cycle dependant) 20N  
 Static force 100N

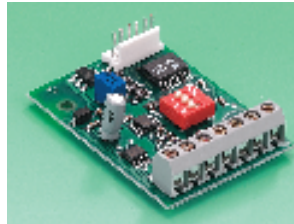
mot183

Order Code	1+	5+	10+	25+	50+
<b>318-7603</b>					

## Stepper Motor Drivers

### Stepper Motor Driver, Unipolar 0.5A

## Burgess



Supply voltage 7-24VDC  
 Motor output 350mA per phase (typ), 500mA (max)

- Simple to use Unipolar (4 phase) stepper drive
- Compact size only 80mm by 40mm
- Full step and half step modes
- On board internal clock, external LS TTL frequency can also be used
- Rated at 350mA per phase at 24V
- Fitted with a MTA 100 6 way header

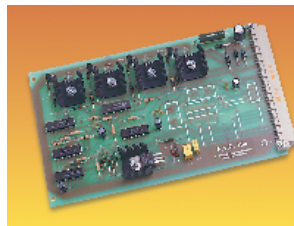
L = 55, W = 40, H = 15

Step frequency 40 to 300Hz adjustable  
 Ambient operating temperature 0°C to 40°C

mot184

Order Code	1+	5+	10+	25+	50+
<b>318-7585</b>					

### Stepper Motor Driver – Unipolar, 2A



L = 160, W = 100, H = 17

Supply Voltage 15-30V dc (+10% max)  
 Current Consumption: 60mA  
 Board Only 2A per phase max (current sinking)  
 Motor output +12V dc, 50mA max  
 Aux output 30kHz (minimum pulse width 5µs)  
 Max input frequency (clock) CMOS scmitt trigger inputs operating at +12V with 10 KΩ pull ups  
 Control inputs: Logic 0 (low) 0V to +2V  
 Logic 1 (high) +9V to +15V max

- Designed to match a wide range of permanent magnet and hybrid stepper motors having 6 or 8 lead configuration
- Full logic translation providing full step and half step modes
- Simple control interface requiring only a pulse and direction input
- Single rail operation – can drive motors up to 2 Amps per phase at 30V dc
- Standard single Eurocard with 32 way DIN 41612 Style B connection
- Supplied with comprehensive instructions

FOR SUITABLE STEPPER MOTORS SEE PAGE 1047

FM16

Order Code	1+	5+	10+	25+	50+
<b>.586-468</b>					

Continued