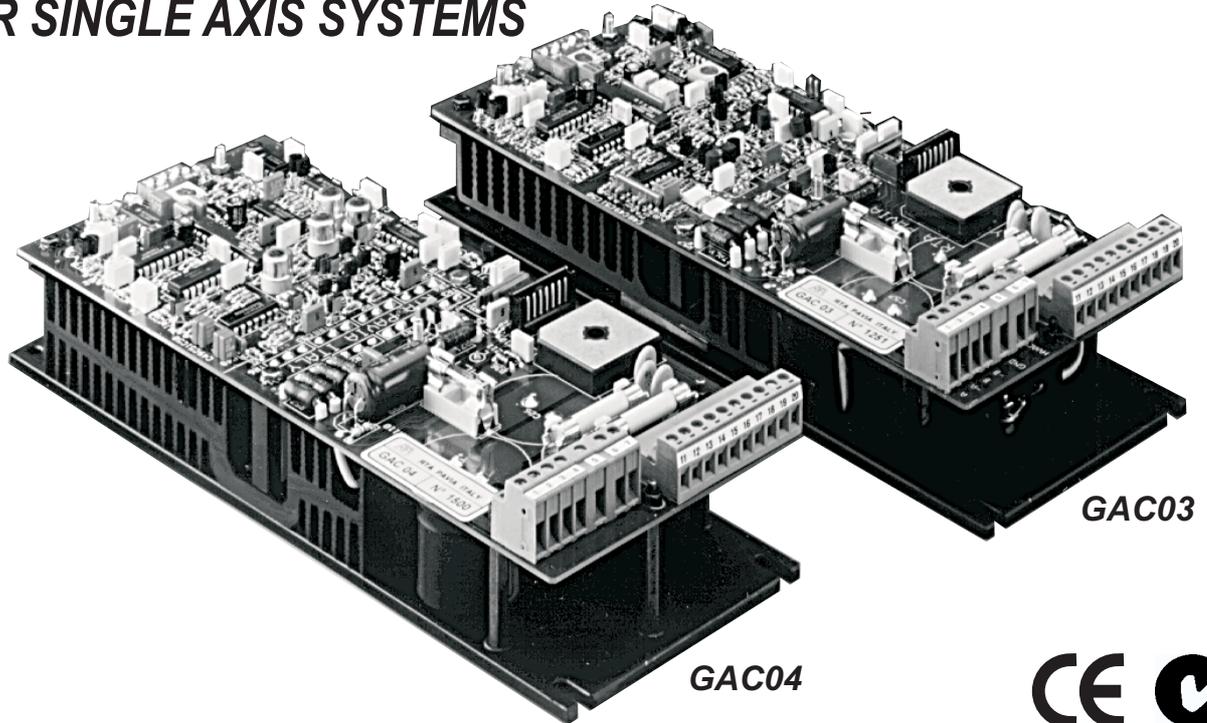




# GAC SERIES STEPPING MOTOR DRIVES

**FOR SINGLE AXIS SYSTEMS**



- High efficiency bipolar chopper circuit.
- Built in power supply components. Just add mains transformer.
- Protection from motor short circuit, overtemperature and overvoltage.
- Full,  $\frac{1}{2}$  or  $\frac{1}{4}$  stepping for smooth running at low speeds.
- High power upto 12A @ 130V. Drives motors upto 6.5" frame.
- LEDs for phase, overtemperature, overvoltage and motor short.
- Adjustable motor current for a wide range of motors.
- Incorporated electronic damping reduces low speed resonance.
- Suitable for two phase motors, 4, 6 or 8 leads
- Optional plug on ramped oscillator cards available.
- Automatic current reduction at standstill.

The SAC series of stepper motor drives are ideal for single and dual axis motion control applications. Power supply components are built in so you only need to add a mains transformer, stepping motor and a suitable controller with step and direction output signals. External rectifier and filter capacitors are not required. Ramped oscillator cards for simple manual control and indexing systems can also be attached to the drive card.

Two models are available to cover a large range of motor sizes while quarter step operation and electronic damping reduce resonance at low speeds. Protection against motor short circuit is also included. The SAC drives are ideally suited to OEMs for motion control applications such as positioning systems, labelling machines, packaging machines, XY tables, variable speed control and contouring systems.

## SPECIFICATIONS

**LOGIC INPUTS** (low= 0 - 2V, high= 10 -12V or open)  
 Step  
 Direction  
 Current reduction  
 De energise

**LOGIC OUTPUTS** (30V @ 25mA sink open collector)  
 Drive fault  
 Synchronisation  
 Step out

**STEP ANGLE**  
 1.8°, 0.9°, 0.45°

**STANDBY CURRENT**  
 automatic at 50% or 65%

**MOTOR CURRENT**  
 8 settings by DIP switch

**RESONANCE DAMPING**  
 full, half, nil

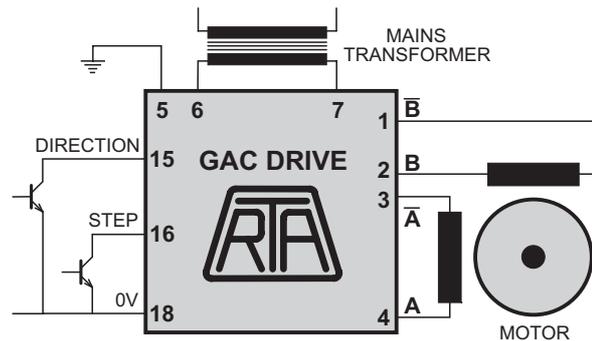
**OPERATING TEMPERATURE**  
 0-50°C

**TRANSFORMER SIZING**  
 5% regulation  
 $Power(VA) = V_{supply} [ I_{drive} + 1.0 ]$

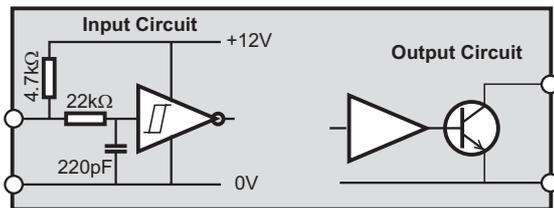
**WEIGHT**  
 1.0kg.

ELECTRICAL CHARACTERISTICS	MODEL	
	GAC03	GAC04
<b>SUPPLY RANGE (VAC)</b>	42 - 62	69 - 95
<b>SUPPLY (VAC)</b> (undervoltage protection)	32	55
<b>SUPPLY (VAC)</b> (overvoltage protection)	75	114
<b>MOTOR CURRENT (A)</b> (maximum)	10.0	12.0
<b>MOTOR CURRENT (A)</b> (minimum)	4.0	5.0
<b>MOTOR CURRENT STEPS</b>	0.85	1.0

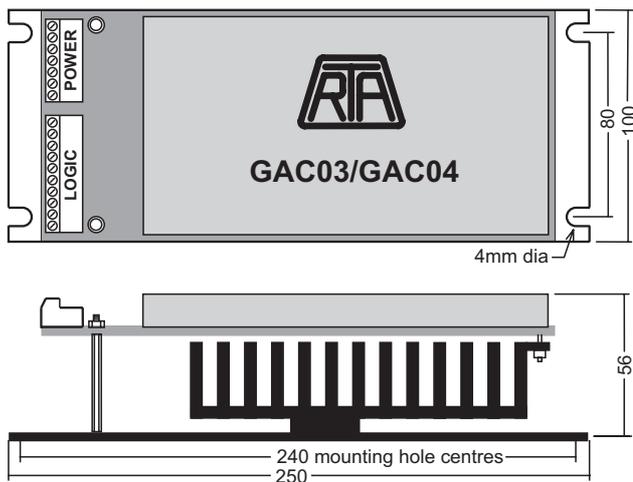
## WIRING DIAGRAM



## LOGIC SIGNALS



## DIMENSIONS (in mm)



## CONNECTIONS (power: 1 to 7, logic: 11 to 20)

- |    |                    |   |
|----|--------------------|---|
| 1  | <b>Motor B̄</b>    | Motor winding (2B or B+)  |
| 2  | <b>Motor B</b>     | Motor winding (2A or B-)  |
| 3  | <b>Motor Ā</b>    | Motor winding (1B or A-)  |
| 4  | <b>Motor A</b>     | Motor winding (1A or A+)  |
| 5  | <b>Earth</b>       | Earth of motor and enclosure  |
| 6  | <b>Supply</b>      | AC Power from isolating transformer   |
| 7  | <b>Supply</b>      | AC Power from isolating transformer   |
| 11 | <b>Internal</b>    | Do not use.   |
| 12 | <b>Drive Fault</b> | Normally low (to 0V) but becomes high when drive protection is active.  |
| 13 | <b>Synch.</b>      | To reduce audible beat noise in multi axis applications   |
| 14 | <b>Current</b>     | Forcing this signal low sets motor current to standby value when automatic reduction is not used. Can also be used as a current BOOST.  |
| 15 | <b>Direction</b>   | Forcing signal low (to 0V) will reverse motor direction. This signal must be on for at least 50μs before STEP input is received and must remain on for at least 50μs after the last step is received. |
| 16 | <b>Step Input</b>  | Forcing low (to 0V) will cause the motor to step once. Signal must be present for at least 30μs and should ideally be 50% duty cycle.   |
| 17 | <b>De energise</b> | Forcing this signal low (0V) switches off motor current. When open (no connection) motor current is on.   |
| 18 | <b>0V Logic</b>    | 0V common for all logic signals.  |
| 19 | <b>Reserved</b>    | For add on ramped oscillator cards only.  |
| 20 |                    | Only used when oscillator cards are installed.  |

Motors, transformers, controllers, motion control software and motor couplings also available on request.  
 Continuous development may necessitate changes in models and specifications without notice.

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