

# Brushless motor with integrated electronics

# BLDC 48

## Description

The BLDC 48 is a variable speed brushless DC motor with integrated drive electronics providing up to 12 watts continuous output power. A number of options provide the choice of:

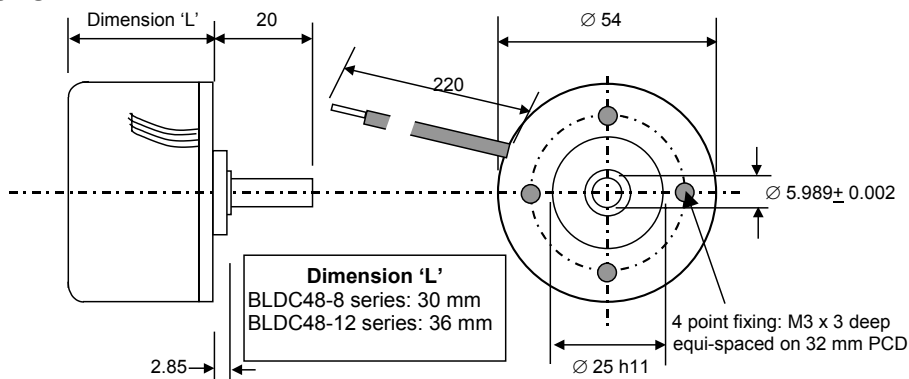
- 12 or 24 Vdc operation,
- 8 or 12 Watt output power options
- Choice of models providing clockwise or counter clockwise operation
- 2 wire versions provide variable speed depending on supply voltage
- 4 wire versions provide variable speed control at full torque proportional to a 0-5V control signal & a 6 pulse/rev monitor signal



The units provides a compact solution to a variety of light industrial applications such as conveyor drives, tensioning mechanisms, paper feed and pump drives. Scientific applications include stirring equipment, peristaltic pumps, mixing machines, as well as any variable speed application that requires long maintenance free life and operating speeds from 100 to 3000 rpm.

The motor's design incorporates an external rotor and magnet system which provides particularly smooth running, high grade bearings and drive electronics, all of which are housed in an enclosure suitable for use up to IP55 operating conditions. The inclusion of the drive electronics within the motor greatly simplifies the use of the motor as well as reducing overall system cost.

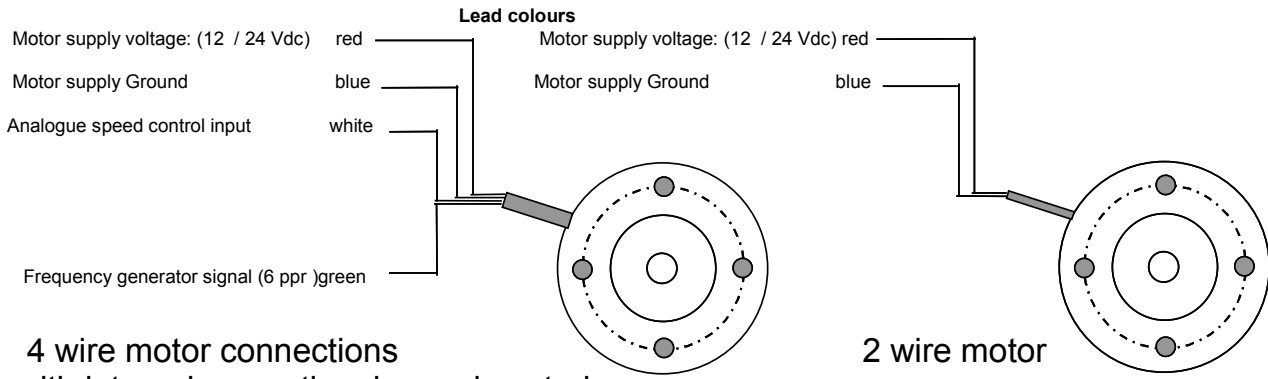
## Dimensions: mm



## Specification

Model		BLDC48-8L		BLDC48-12L	
		cw	ccw	cw	ccw
12 Volt 2 wire version order code	BLDC48-	8L-005	8L-001	12L-025	12L-021
24 Volt 2 wire version order code	BLDC48-	8L-015	8L-011	12L-035	12L-031
12 Volt 4 wire version order code	BLDC48-	8L-007	8L-003	12L-027	12L-023
24 Volt 4 wire version order code	BLDC48-	8L-017	8L-013	12L-037	12L-033
Continuous output power	Watts	8		12	
Maximum speed	rpm	4300		4550	
Maximum speed @ rated torque	rpm	≥ 2900		3200	
Rated Torque	Nm	0.022		0.03	
Stall Torque	Nm	≥ 0.032		0.052	
Rotor inertia	Kgcm <sup>2</sup>	0.22		0.3	
Motor Supply voltage	Vdc	12	24	12	24
Motor supply current @ rated torque	Amps	1.01	0.51	1.33	0.69
Peak current @ stall ( internally limited )	Amps	1.4	0.7	1.95	0.95
Analogue speed control signal	V/1000 rpm	0.83 : only available on 4 wire versions			
Digital output speed monitor	ppr	6: only available on 4 wire versions			
Internal Over-temperature protection		standard			
Bearing type		Ball			
Maximum radial load	N	40 @ 15 mm from mounting face			

# BLDC 48: connections solution



**Note: The direction of rotation is set internally.**

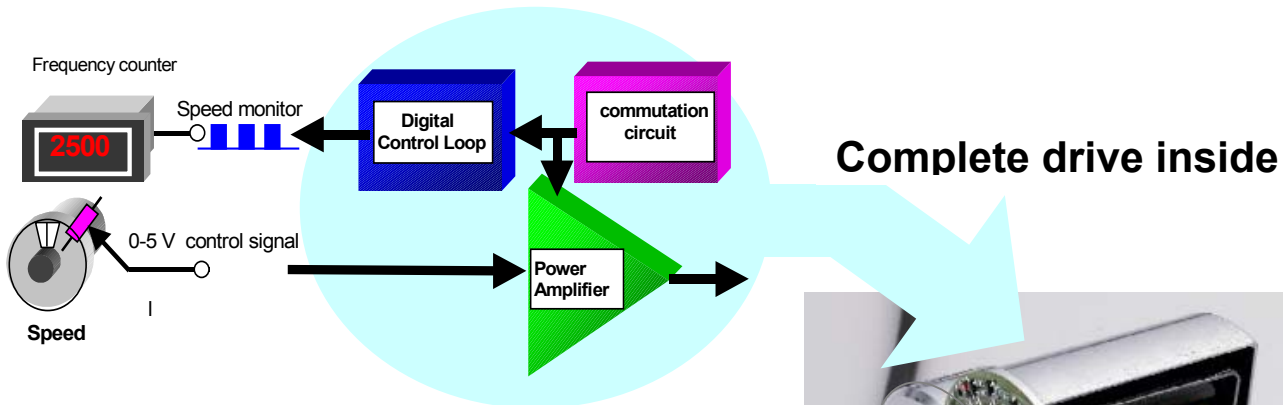
# BLDC 48: Integrated electronics for complete drive solution

## 2 wire motors

The two wire motors have internal drive electronics that provides control similar to a conventional dc motor. By reducing the applied voltage the speed and peak torque are reduced. The motor is ideally suited to applications such as laboratory stirrers & shakers, tensioning drives and fixed speed pumps. An internal current control circuit automatically limits motor current to a safe level to protect the motor against stall conditions.

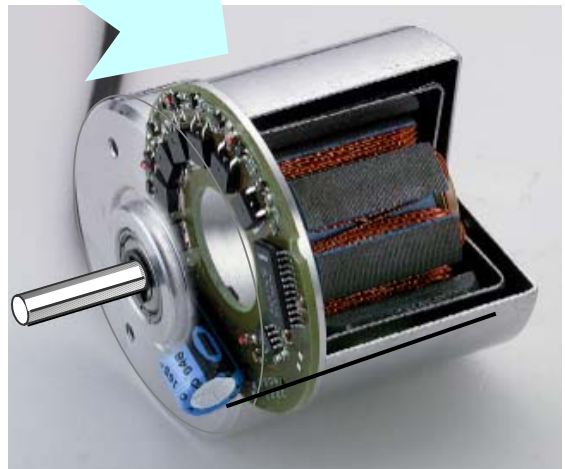
## 4 wire motors

In addition to the above features the 4 wire motors include speed control loop electronics & internal amplifier to provide a complete and accurate velocity control system within the motor. The motor speed is externally controlled by means of a 0-5V control signal. Applications include variable speed pumps, conveyors & laboratory equipment.



The integration of power amplifier and speed loop circuitry within the motor greatly simplifies control.

Simply connect a speed control potentiometer for variable velocity control.  
 A digital output signal also enables motor speed to be accurately monitored.



# Geared Brushless motor

# S64A / BLDC 48

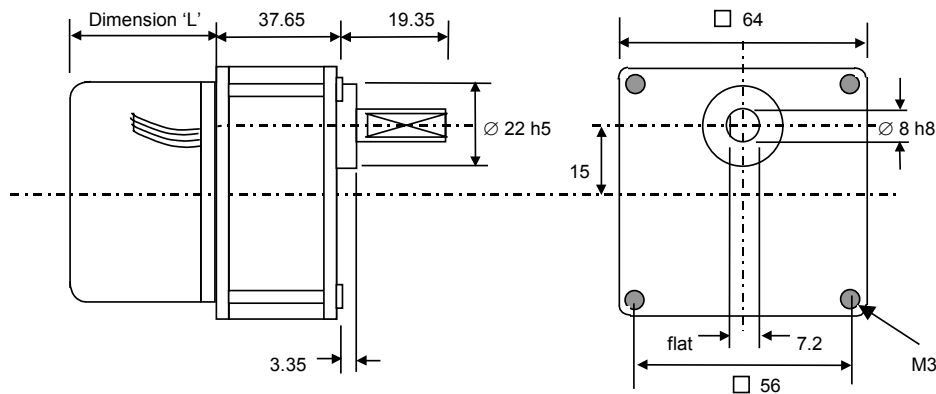
The geared versions of BLDC48 provide increased operating torque at reduced speed.

The S64A gearhead has been specially designed to provide long maintenance free life so that the full advantages of a brushless motor can be utilised. The design features a precision cut spur gear system & an output shaft supported by ball bearings.

### Applications include:

- Peristaltic pumps
- Conveyors
- Mixing Equipment
- Paper feed drives
- Tensioning drives

### Dimensions: mm



### Performance using BLDC48

Gearhead	Ratio n:1	Using BLDC48-8L			Using BLDC48-12L		
		Rated Speed rpm	Rated Torque Nm	Peak Torque Nm	Rated Speed rpm	Rated Torque Nm	Peak Torque Nm
S64A0005AA	5	600	0.09	0.13	640	0.12	0.2
S64A0012AA	12.5	230	0.2	0.3	250	0.26	0.45
S64A0025AA	25	120	0.36	0.5	125	0.5	0.85
S64A0050AA	50	60	0.72	1.0	60	1.0	1.7
S64A0100AA	100	30	1.3	1.9	30	1.75	3.0
S64A0125AA	125	24	1.6	2.3	25	2.2	3.8
S64A0250AA	250	12	3.0	4.5	Use 8 watt motor		

### General gearhead specification

Maximum Radial load:	50 N
Maximum axial load	20 N
Output Bearings	Ball
Lubrication	Grease
Temperature range	-20 to + 65 Degrees C.
Mass ( motor + gearhead )	typically 400 g.

### Direction of Rotation @ Output Related to input

Gearhead	Direction
S64A0005AA	Same
S64A0012AA	Opposite
S64A0025AA	Same
S64A0050AA	Same
S64A0100AA	Opposite
S64A0125AA	Opposite
S64A0250AA	Opposite

# Geared Brushless motor

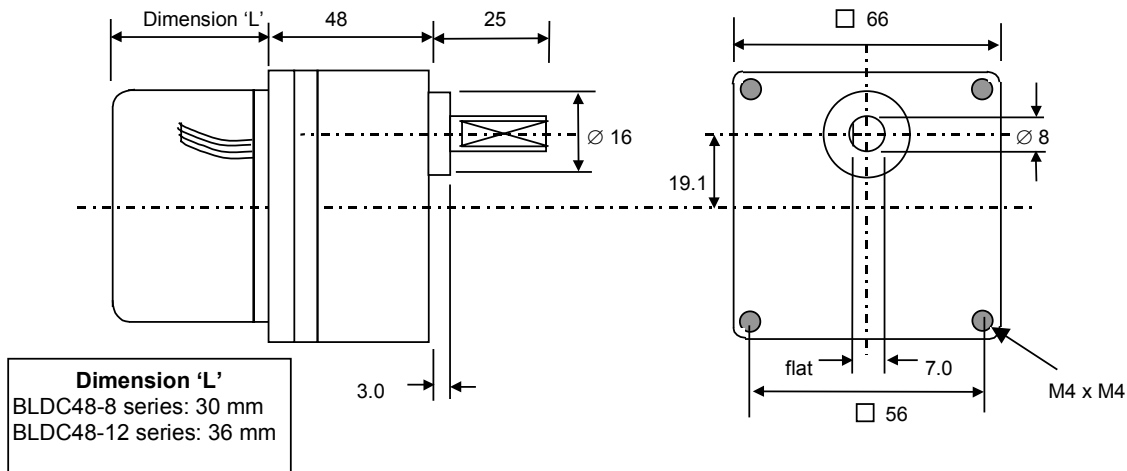
# MRIG / BLDC 48

The geared versions of BLDC48 provide increased operating torque at reduced speed. The MRIG gearhead has been specially designed to provide a high torque capacity & long maintenance free life in a robust die-cast housing. The design features a precision cut spur all metal gear system with torque ratings up to 7 Nm

Applications include:

- Peristaltic pumps
- Conveyors
- Mixing Equipment
- Paper feed drives
- Tensioning drives

## Dimensions: mm



## Performance using BLDC48

Gearhead	Ratio n:1	Using BLDC48-8L			Using BLDC48-12L		
		Rated Speed rpm	Rated Torque Nm	Peak Torque Nm	Rated Speed rpm	Rated Torque Nm	Peak Torque Nm
MRIG02S	5	600	0.08	0.13	640	0.12	0.2
MRIG06S	12.5	230	0.2	0.3	250	0.26	0.45
MRIG11S	25	120	0.36	0.5	125	0.5	0.85
MRIG17S	50	60	0.73	1.0	60	1.0	1.7
MRIG22S	100	30	1.3	1.9	35	1.75	3.0
MRIG23S	125	24	1.6	2.3	25	2.2	3.8
MRIG27S	250	12	3.0	4.5	12	3.9	7.0
MRIG34S	500	6	5.0	7.0	Use 8 watt motor		

## General gearhead specification

Maximum Radial load:	80 N
Maximum axial load	80 N
Output Bearings	Sleeve
Lubrication	Grease
Mass ( motor + gearhead )	typically 400 g.

## Direction of Rotation @ Output Related to input

Gearhead	Direction
MRIG02S	Opposite
MRIG06S	Opposite
MRIG11S	Same
MRIG17S	Same
MRIG22S	Opposite
MRIG23S	Opposite
MRIG27S	Same
MRIG34S	Same

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