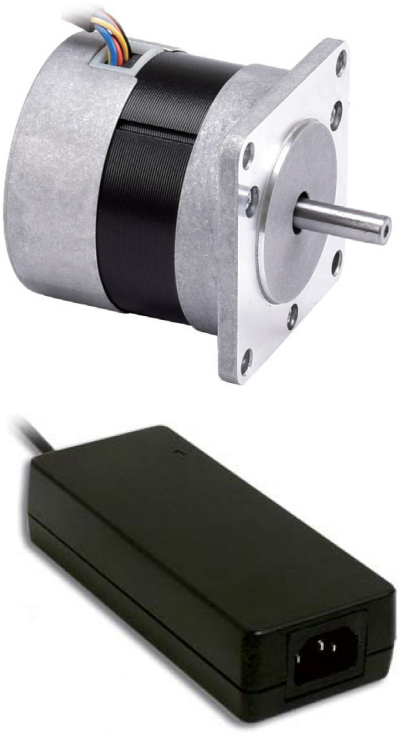
B-MOTOR-PMSMA1

Data brief

50 W motor and power adapter pack for ZeST Discovery kit



B-MOTOR-PMSMA1 motor and power adapter. Pictures are not contractual.

Features

- Suitable for six-step and FOC control method
- Motor-R57BLB50L2 from MOONS'
  - Small size and high power motor
  - 50 W output power
  - Maximum torque up to 0.39 N·m (55.2 ozf·in)
  - Wide range of speed control and smooth torque output
  - High speed stability
  - Low temperature rise, low noise, low vibration
  - Low positioning torque
- Power adapter-GST90A24-TW from MEAN WELL
  - 90 W at 24 V dc single-output AC/DC adapter
  - Three-pole AC inlet IEC320-C14, adopting an input range of 90 V ac to 264 V ac, 47 to 63 Hz
  - Built-in active PFC function
  - No load power consumption less than 0.15 W
  - LED indicator for power ON

Description

The B-MOTOR-PMSMA1 50 W motor and power adapter package is primarily intended to demonstrate the FOC control method in the framework of a low-cost motor control application. It is designed to operate with the ZeST motor control development platform. It includes a R57BLB50L2 motor from MOONS' and a GST90A24-TW AC power adapter from MEAN WELL.

The R57BLB50L2 motor connects to the power board of the ZeST motor control development platform.

The GST90A24-TW power adapter is a 90 W AC/DC power adapter, which powers the power board. It can also supply the whole ZeST motor control development platform. It does not include an AC power cord.

The R57BLB50L2 motor and the GST90A24-TW power adapter are supplied by third parties not affiliated to STMicroelectronics. For complete and latest information, refer to the third-party web pages mentioned in the ordering information section of the data brief.

Product status link
B-MOTOR-PMSMA1

1 Ordering information

To order the B-MOTOR-PMSMA1, refer to Table 1.

Table 1. List of available products

Order code	Components reference
B-MOTOR-PMSMA1	• R57BLB50L2 (1) • GST90A24-TW (2)

1. *Motor.*
2. *Power adapter, with an optional plug called "Stripped and tinned leads".*

Note:
- *For more details on the R57BLB50L2 motor, visit the MOONS' website at www.moonsindustries.com and type "R57BLB50L2" in the search box.*
- *For more details on the GST90A24-TW power adapter, visit the MEAN WELL website at www.meanwell.com, type "GST90A" in the search box, and click the PDF icon of the GST90A series documentation.*

The B-MOTOR-PMSMA1 package can be used with the STEVAL-LVLP01 and with the B-G473E-ZEST1S ZeST Discovery kit, which feature the STM32G473QET6 32-bit microcontroller based on the Arm® Cortex®-M4 processor.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

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1.1 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

B-TTTT-XXXXAX	Description	Example: B-MOTOR-PMSMA1
B	Package target	B for Discovery kit
TTTT	Type	MOTOR for motor accessory
XXXX	Motor type	PMSM for permanent magnet synchronous motor
A	Category	A for low end
X	Sequential number	Number 1

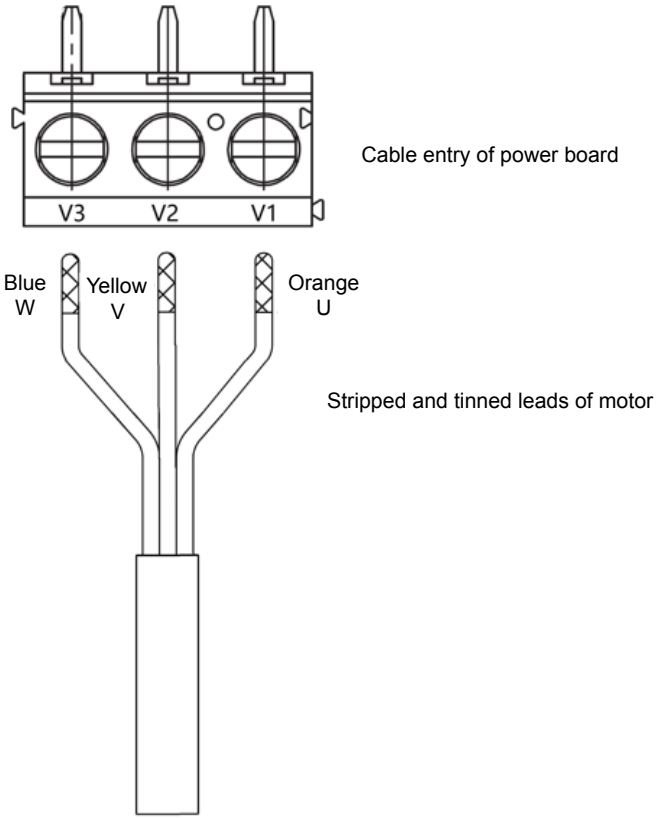
2 Setting up the B-MOTOR-PMSMA1

This section is, for instance, applicable to the B-G473E-ZEST1S ZeST Discovery kit, which works with a variety of power boards, such as the STEVAL-LVLP01.

2.1 Setting up the motor

The stripped and tinned leads of R57BLB50L2 must be inserted and fixed in the cable entry of the power board as shown in Figure 1.

Figure 1. Motor connected to the cable entry of the power board

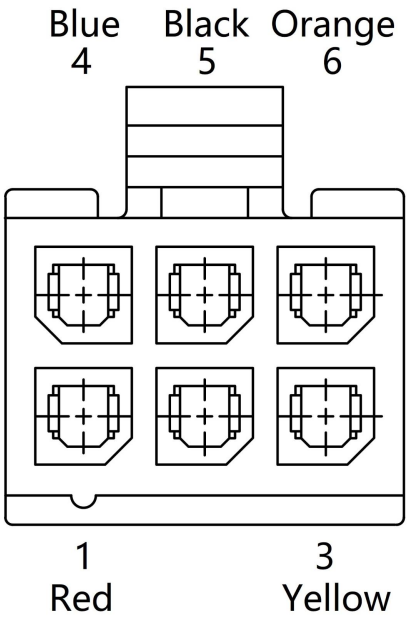


There is a Hall sensor connector on the R57BLB50L2 motor. Hall sensor signals can be connected to the Hall sensor connector of the power board through external wires.

Note: Be careful to connect the corresponding wire to the correct pin on the power board.

The pin definition of the Hall sensor connector on the motor is shown in Figure 2.

Figure 2. Pin definition of the Hall sensor connector on the motor



No.	Color	Function
1	Red	VCC(+5V)
3	Yellow	Hv
4	Blue	Hw
5	Black	GND
6	Orange	Hu

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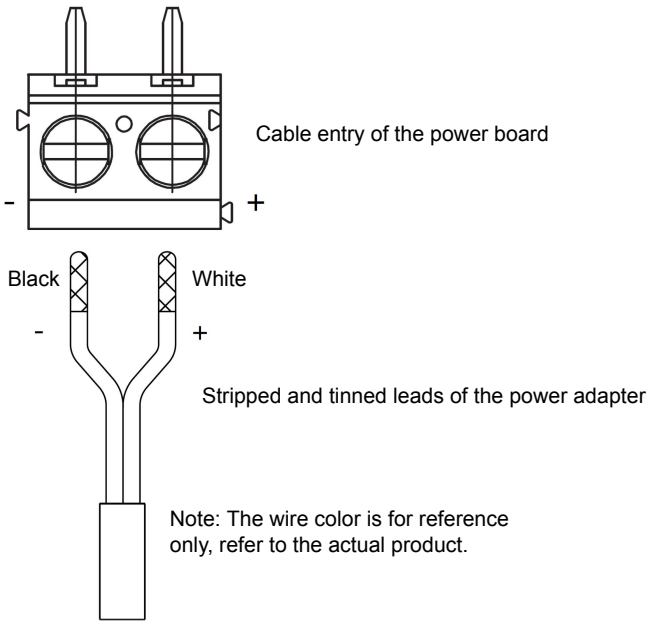
2.2 Setting up the power adapter

The stripped and tinned leads of GST90A24-TW must be inserted and fixed in the cable entry of the power board as shown in Figure 3.

Figure 3. Power adapter connected to the cable entry of the power board



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For environmental purposes, the power cords suitable for each region are not included in the package. Purchase the power cords separately in the suitable region.

The AC inlet of GST90A24-TW is IEC320-C14. Its input ranges from 90 V ac to 264 V ac.

Revision history

Table 3. **Document revision history**

Date	Revision	Changes
03-Jul-2023	1	Initial release.