EVKT-MSM942052-24

eMotion System™ Smart Motor Module Evaluation Kit

FEATURES

The **EVKT-MSM942052-24 evaluation kit** is part of a family of fully integrated smart motor solutions for servo motor applications. This 42mm (NEMA 17), 52W motor integrates a brushless DC motor and a smart motor module. The user can program the system to operate in speed control mode, position control mode, or torque control mode. Two control interface options are available: an RS485 interface and a PULSE/DIR interface.

Easy-to-use GUI software provides flexibility by allowing users to optimize the design online through the RS485 control interface. The parameters are saved in the motor module's non-volatile memory. A design guide for the GUI is available for download at www.monolithicpower.com.

The smart motor modules can be ordered separately for customization into different motor types. The **MMP742052-24** is the driver module part number used in the kit.

The datasheet for the MMP742052-24 is available for download at www.monolithicpower.com.

DESCRIPTION

- 18V to 36V Input Voltage Range
- Max 52W Continuous Power Output
- 0.125N-m Rated Torque (0.375N-m Peak Torque)
- 0.3° Position Resolution
- RS485 Interface and PULSE/DIR Interface
- Position, Speed, and Torque Control Modes
- Operating Temperature: 0°C to 70°C (Power Derated > 40°C)
- Storage Temperature: -40°C to +125°C

ORDERING INFORMATION

Part Number	EVKT-MSM942052-24
Diameter (mm)	42
Power (W)	52
Typical Voltage (V)	24
Interface	RS485

Evaluation Kit EVKT-MSM942052-24 Contents

#	Part Number	Item	Quantity
1	EVKT-MSM942052-24	BLDC motor with MMP742052-24 smart motor module installed	1
2	eMotion System™ communication kit	USB communication interface with cable	1

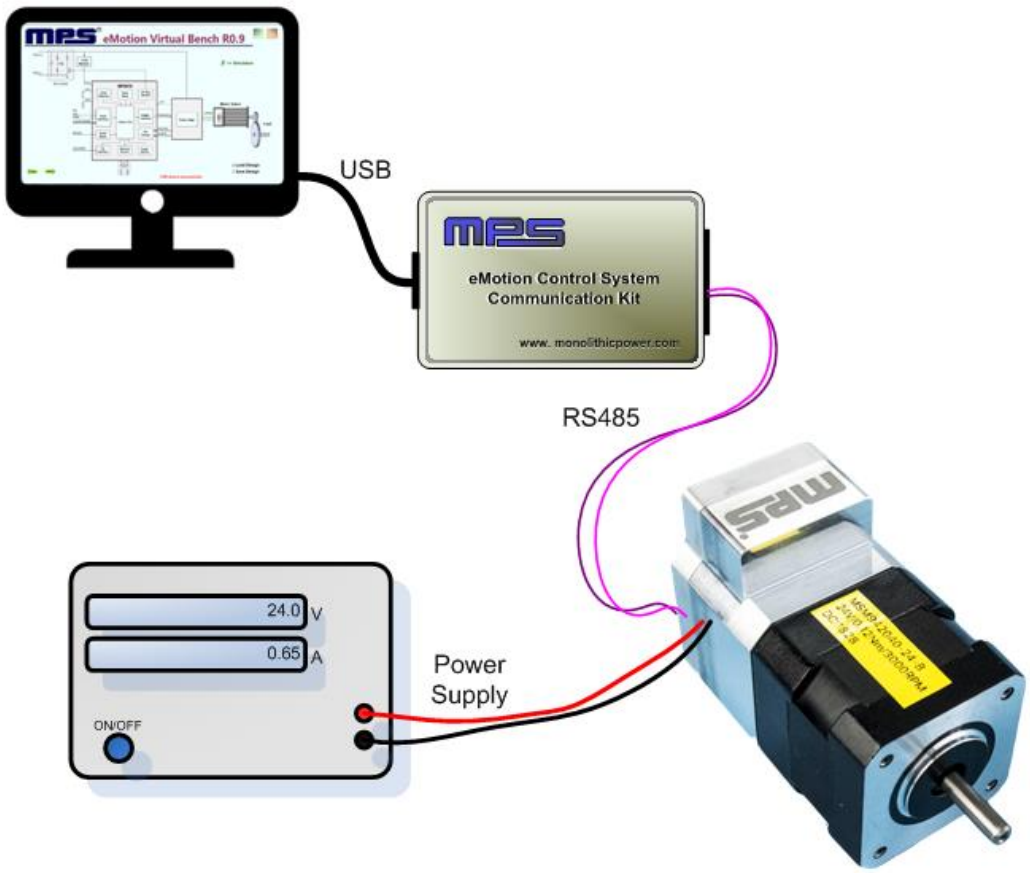
EVALUATION KIT SPECIFICATIONS

Smart Motor Module Evaluation Kit			
Parameter	**Condition**	**Value**	**Units**
Input voltage		24	**V**
Output power	0°C to 40°C	52	**W**
Position resolution		0.3	**°**
Nominal speed		4000	**rpm**
Nominal torque		0.125	**N-m**
Rotor inertia		48	**g-cm²**
Diameter		42	**mm**
Shaft diameter		5	**mm**
Length	Body only	60	**mm**
Weight		500	**g**

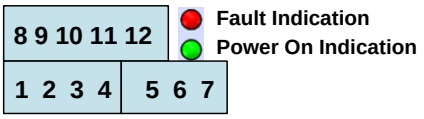
RECOMMENDED OPERATING CONDITIONS

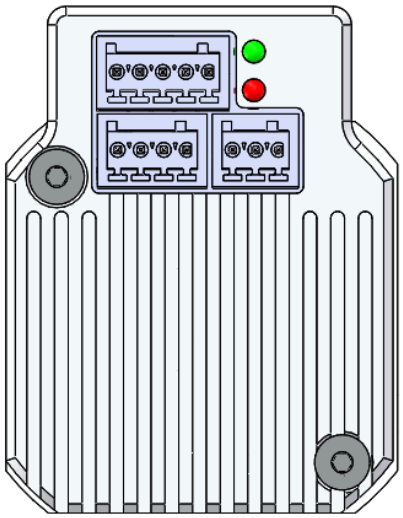
Input voltage..... 18V to 36V
Control interface voltage..... 0V to 5.5V
Max pulse frequency 500kHz
RS485 A/B voltage ..... 0V to 5.5V
RS485 common mode voltage.....±15V
Operation temperature..... 0°C to 70°C
Storage temperature.....-40°C to +125°C

HARDWARE CONNECTIONS



PIN CONFIGURATION

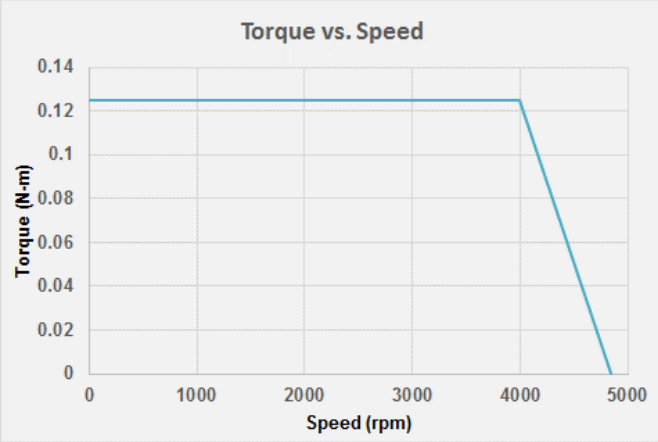


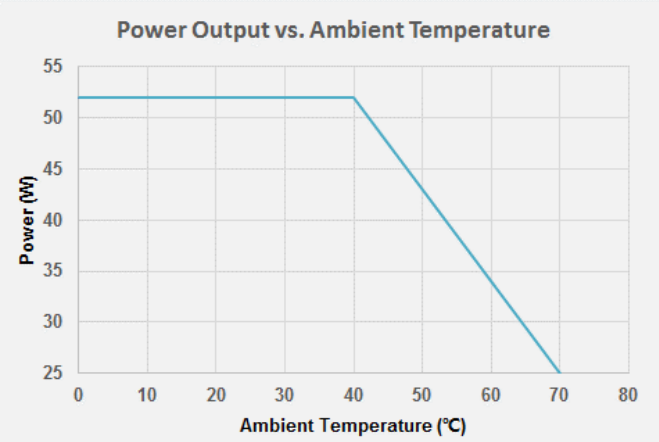


Pin Number	Designation	Pin Description
RS485 Interface		
1	EXT_5V	5V input for firmware programming
2	B	RS485 node B
3	AGND	RS485 ground
4	A	RS485 node A
Power Interface		
5	GND	Power ground
6	R-	Shunt resistor return node
7	VIN	Input power supply
Control Interface		
8	COM-	Common return
9	EN+	Enable input
10	PEND+	Position end output
11	PUL+	Pulse input
12	DIR+	Direction input

TYPICAL PERFORMANCE CHARACTERISTICS

T_A = 25°C, V_{IN} = 24V, unless otherwise noted.





MECHANICAL DRAWING