



# EVKT-MSM957141-36

## eMotion System™ Smart Motor Module Evaluation Kit

### FEATURES

The **EVKT-MSM957141-36 evaluation kit** is part of a family of fully integrated smart motor solutions for servo motor applications. This 57mm (NEMA 23), 141W 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](http://www.monolithicpower.com).

The smart motor modules can be ordered separately for customization into different motor types. The **MMP757141-36** is the driver module part number used in the kit.

The datasheet for the **MMP757141-36** is available for download at [www.monolithicpower.com](http://www.monolithicpower.com).

### DESCRIPTION

- 18V to 70V Input Voltage Range
- Max 141W Continuous Power Output
- 0.45N-m Rated Torque (1.35N-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

<b>Part Number</b>	EVKT-MSM957141-36
<b>Diameter (mm)</b>	57
<b>Power (W)</b>	141
<b>Typical Voltage (V)</b>	36
<b>Interface</b>	RS485

### Evaluation Kit EVKT-MSM957141-36 Contents

#	Part Number	Item	Quantity
1	EVKT-MSM957141-36	BLDC motor with MMP757141-36 smart motor module installed	1
2	eMotion System™ communication kit	USB communication interface with cable	1



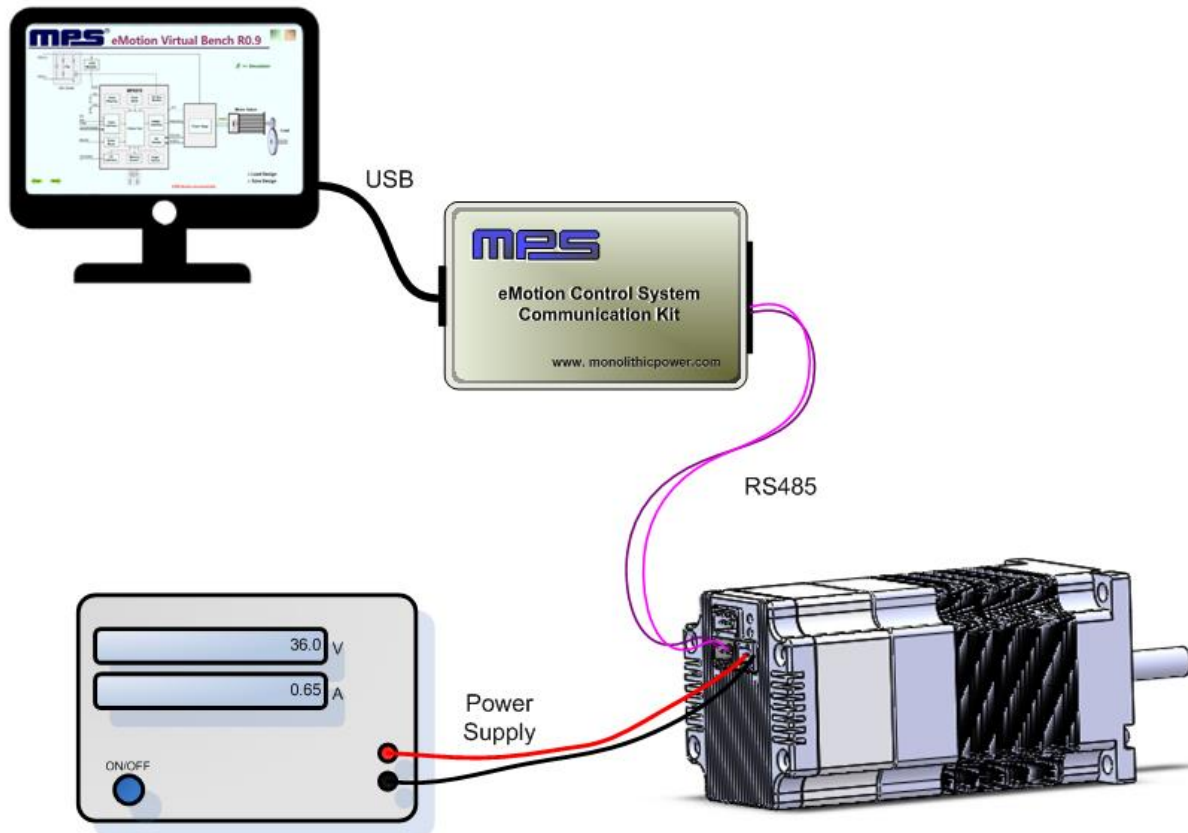
## EVALUATION KIT SPECIFICATIONS

Smart Motor Module Evaluation Kit			
Parameter	Condition	Value	Units
Input voltage		36	V
Output power	0°C to 40°C	141	W
Position resolution		0.3	°
Nominal speed		3000	rpm
Nominal torque		0.45	N-m
Rotor inertia		320	g-cm <sup>2</sup>
Diameter		57	mm
Shaft diameter		8	mm
Length	Body only	96	mm
Weight		1200	g

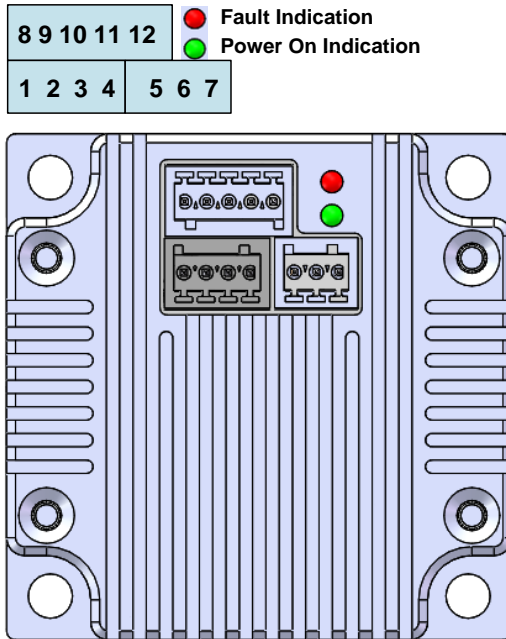
## RECOMMENDED OPERATING CONDITIONS

Input voltage..... 18V to 70V  
 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



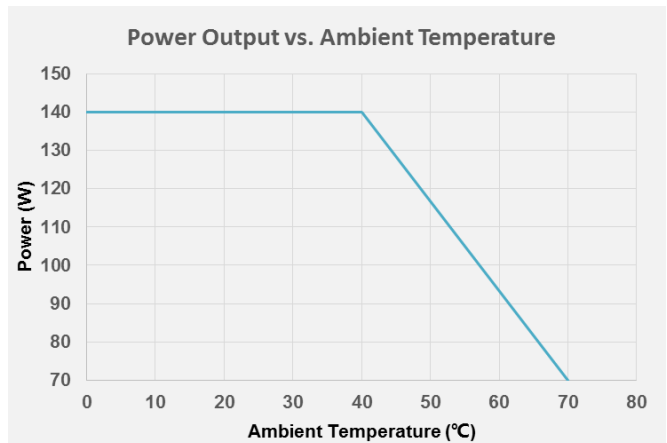
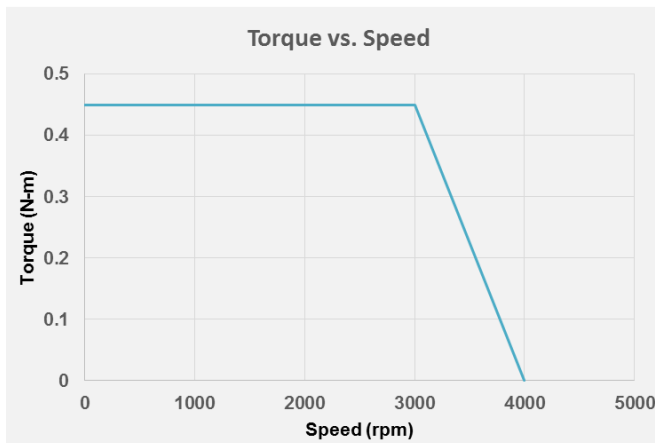
## PIN CONFIGURATION



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

## TYPICAL PERFORMANCE CHARACTERISTICS

$T_A = 25^\circ\text{C}$ ,  $V_{IN} = 36\text{V}$ , unless otherwise noted.



MECHANICAL DRAWING

