SMART MOTOR DEVICES

Stepper motor SM4247 with integrated driver SMD-1.6 mini IP65

manual
SM4247/SMD.16mini.IP65.002

2019

1. Product designation

This device is a stepper motor SM4247 with an integrated control unit SMD-1.6 mini with protection IP65. Stepper motor is intended for transformation of control signals in angular movement of the rotor with its fixation in the given position without feedback devices. Integrated control unit SMD-1.6 mini is an electronic device mounted on the motor SM4247 housing and is intended for this motor control.
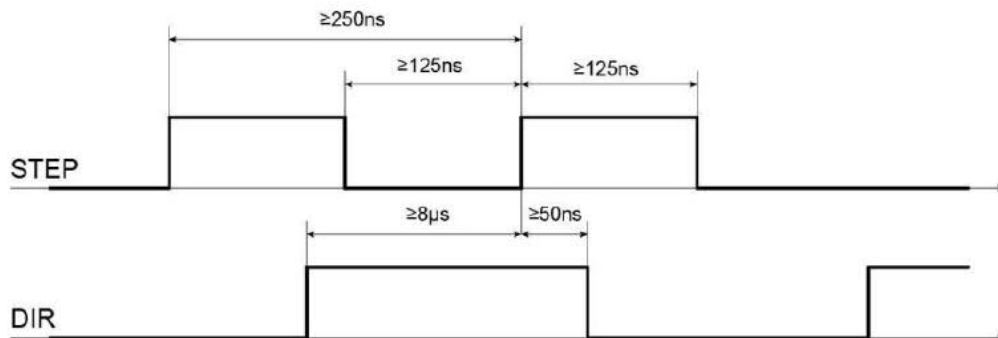
2. Technical characteristics
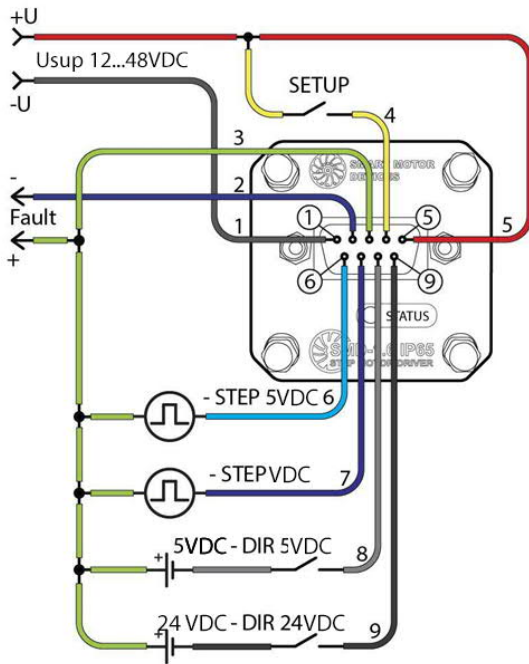
Table 1. Technical characteristics.

Motor phase current, Amp	1.6
Holding torque, kgf·cm[1]	4.4
Protection class	IP65
Rotor inertia, g·cm^2	68
Microstepping modes	1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/128, 1/256
Power supply voltage, VDC stabilized	12 - 48
Max. radial force (20 mm from the flange), N	28
Max. axial force, N	10
Shaft radial play, no more, mm	0.02
Shaft axial play, no more, mm	0.08
Step angle accuracy	±5% relative to the whole step
Phase resistance, Ohm	0.8
Phase inductance, mH	3.5
Temperature Rise, °C	80
Average resource, hours	20000

[1] *Holding torque – the motor is powered but doesn't rotate*

3. Control signals – oscillogram, schemes, connection diagrams
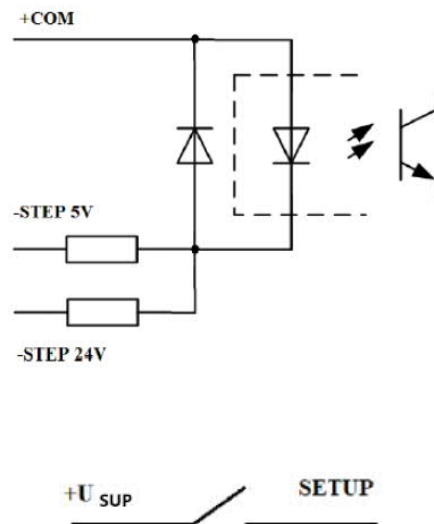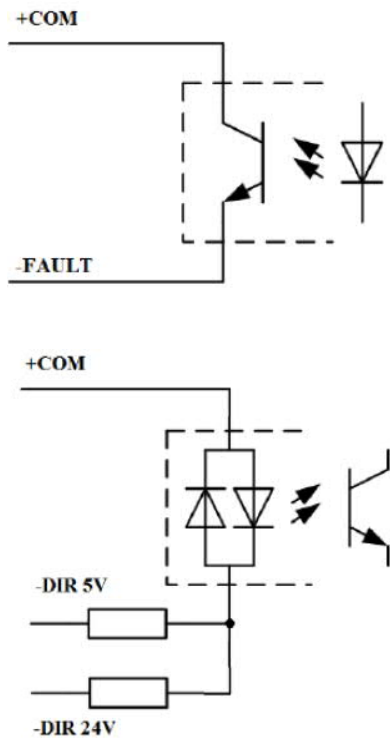

Img.1. «STEP» and «DIR» signals order and duration

![SMART MOTOR DEVICES logo](http://smd.ee)
Img.2. Connection scheme

Table 2. Contacts assignment.

Contact number	Assignment n
1	- U supply (12…48 VDC)
2	- Fault (error indication)
3	+ COM (common contact of the control interface)
4	Setup (input of operation parameters)
5	+ U supply (12…48 VDC)
6	- Step 5V
7	- Step 24V
8	- Dir 5V
9	- Dir 24V

Img. 3. Control signals circuits.

4. Dimensions

Img.4. Dimensions of stepper motor SM4247 with integrated driver SMD-1.6 mini IP65

5. Configurating of the driver

The 4th contact «SETUP» of the input connector is intended to configure the built-in driver. Duration of the signal «Setup» is not less than 100 ms, pulse-to-pulse spacing is no more than 3 s. To make the configuration process easier, connect a button «Setup» according the connection scheme on Img. 3.

Driver setting parameters are indicated by 2-color LED. Number of red blinks indicates the parameter number, green blinks - parameter value. Correspondence between the color indication and driver settings is shown in the table 3. Default values of parameters are shown in bold and underlined.

Table 3. correspondence of LED indication and driver settings

Number of red blinks / parameter number	Meaning	Number of green blinks / parameter value	Meaning
1	Microstepping	1	1
		2	1/2
		3	1/4
		4	1/8
		5	1/16
		6	1/32
		7	1/128
		8	1/256
2	Holding current	1	10%
		2	20%
		3	30%
		4	40%
		_5_	**_50%_**
		6	60%
		7	70%
		8	80%
		9	90%
		10	100%
3	Rotation direction	**_1_**	**_Not inversed_**
		2	Inversed

To enter the configurating mode press and hold «SETUP» button (or hold a signal at the «SETUP» input) for no less than 3 s. After entering cofigurating mode the green LED blinks off, the driver is waiting for entering of a parameter number. The parameter number is set by short signals at «SETUP» input (or «SETUP» button). Every signal impulse is indicated by green LED blink.

After entering the number of the setting parameter wait for 3 s. The single red LED flash indicates accepting of the parameter number and readiness to get the parameter value. Entering of the parameter value is the same as entering the parameter number.

6. Environmental conditions:

SMD-1.6mini IP65 with motor SM4247 is designed to operate in operating mode S1 (24 hours/day) under the next conditions:

- Ambient environment: non- corrosive, non-explosive,
- Humidity: 90% RH or less upon condition +25°C
- Condensation and freezing: none
- Pressure: 650…800 mm of mercury.
- Ambient Temperature: 0…+40°C

7. Delivery in complete sets

Stepmotor SM4247 with integrated driver SMD-1.6 mini IP65   1 pcs
Manual SM4247/SMD.16mini.IP65.002   1 pcs

9. Warranty

Any repair or modifications are performed by the manufacturer or an authorized company.
The manufacturer guarantees the failure-free operation of the controller for 12 months since date of sale when the operation conditions are satisfied.

The manufacturer sales department address:
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Date of sale: