Stepper motor
EMMT-ST-42-S-RMB

Part number: 8156166

General operating condition

Data sheet

Feature	Value
Ambient temperature	0 °C ... 40 °C
Note on ambient temperature	Up to 80°C with derating -2%/°C
Max. installation height	4000 m
Note on max. installation height	As of 1,000 m: only with derating of -1.0% per 100 m
Storage temperature	-20 °C ... 70 °C
Relative air humidity	Non-condensing
Conforms to standard	IEC 60034
Temperature class as per EN 60034-1	B
Max. winding temperature	130 °C
Rating class as per EN 60034-1	S1
Temperature monitoring	Dig. motor temp. via BiSS-C
Motor type to EN 60034-7	IM V1 IM V3
Mounting position	optional
Degree of protection	IP40
Note on degree of protection	IP40 Motor shaft IP65 for motor housing, incl. connection technology
Interface code, motor out	42A
Electrical connection 1, connection type	Hybrid plug
Electrical connection 1, connector system	M17x0.75
Electrical connection 1, number of connections/cores	12
Electrical connection 1, connection pattern	00997532
Note on materials	RoHS-compliant
Corrosion resistance class CRC	0 - No corrosion stress
LABS (PWIS) conformity	VDMA24364 zone III
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Approval	RCM trademark c UL us - Recognized (OL)
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK RoHS instructions
Certificate issuing authority	UL E342973
Nominal operating voltage DC	48 V
Number of pole pairs	50
Motor holding torque	0.25 Nm

Feature	Value
Nominal torque	0.24 Nm
Peak torque	0.25 Nm
Nominal rotary speed	600 rpm
Max. rotational speed	2700 rpm
Max. mechanical speed	9000 rpm
Stepper angle for complete step	1.8 deg
Stepping angle tolerance	±5%
Nominal power rating of motor	17 W
Continuous stall current	2 A
Nominal motor current	1.8 A
Peak current	2 A
Motor constant	0.133 Nm/A
Voltage constant, phase	12.1 mVmin
Phase winding resistance	2.1 Ohm
Phase winding inductance	0.3 mH
Winding longitudinal inductivity Ld (phase)	1.6 mH
Winding cross inductivity Lq (phase)	3 mH
Electric time constant	1.4 ms
Thermal time constant	22 min
Thermal resistance	3.5 K/W
Measuring flange	200 x 200 x 15 mm, steel
Total mass moment of inertia of output	0.043 kgcm²
Product weight	590 g
Permissible axial shaft load	10 N
Permissible radial shaft load	28 N
Rotor position sensor	Absolute multi-turn encoder
rotor position sensor, manufacturer designation	KCD-BC33B-1617-JP4F-GRQ-009
rotor position sensor, absolute detectable revolutions	65536
Rotor position encoder interface	BiSS-C
Rotor position sensor, encoder measuring principle	Magnetic
rotor position sensor, DC operating voltage	5 V
rotor position sensor, DC operating voltage range	4.5 V ... 5.5 V
Rotor pos. enc., sin/cosin p/r	2
rotor position sensor, position values per revolution	131072
Rotor position transducer resolution	17 bit
rotor position sensor, system accuracy of angle measurement	-310 arcsec ... 310 arcsec
Brake holding torque	0.63 Nm
Operating voltage DC for brake	24 V
Brake current consumption	0.34 A
Power consumption, brake	8.2 W
Brake coil resistance	70.9 Ohm
Brake coil inductivity	146 mH
Brake separation time	≤28 ms
Brake closing time	≤41 ms
DC brake response delay	≤8 ms
Max. brake no-load speed	9000 rpm
Max. friction per braking process	1500 J
Number of emergency stops per hour	1
Mass moment of inertia of brake	0.006 kgcm²
Switching cycles holding brake	10 million idle actuations (without friction work!)
Mean time to failure (MTTF), subcomponent	20 years, rotor position encoder