B&R 8LSN Series Service Manual

8LSN54.ee020ffgg-0

1. Description

8LSN three-phase synchronous servo motor (self-cooling, slim & elongated design). Specially developed for applications requiring a high moment of inertia, filling out the B&R motion-control range without compromises regarding size or positioning precision. Offers compact size, low weight, high inertia, fast axes through impressive dynamic properties, a universal large overload capability, reduced torque rippling for good controllability, and is very easy to service.

2. Technical Parameters

Parameter	Value
Nominal speed nN [rpm]	2000
Number of pole pairs	3
Nominal torque Mn [Nm]	7.400
Nominal power PN [W]	1550
Nominal current IN [A]	3.000
Stall torque M0 [Nm]	7.800
Stall current I0 [A]	3.200
Maximum torque Mmax [Nm]	30.00
Maximum current Imax [A]	16.40
Maximum speed nmax [rpm]	7200
Torque constant KT [Nm/A]	2.440
Voltage constant KE [V/1000rpm]	147.65
Stator resistance R2ph [Ohm]	5.994
Stator inductance L2ph [mH]	29.28000
Electrical time constant tel [ms]	4.900
Thermal time constant ttherm [min]	40.0
Moment of inertia J [kg·cm2]	15.7500
Mass m (without brake) [kg]	9.50
Holding torque of brake MBr [Nm]	27.00
Brake mass [kg]	0.00
Moment of inertia of brake JBr [kg·cm2]	9.5000
Cable cross-section [mm2]	0.7500
Connector size/type	1.0
Recommended servo drive (ACOPOS)	4X5X

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3. Product Information

Order number: 8LSN54.ee020ffgg-0

Additional information from the manufacturer's manual:

Compliance: UL/C-UR-US listed, UL file E235396; conforms to LVD 2014/35/EU and EMC 2014/30/EU; standards EN 60034-1/7/11/14. Life-cycle status not stated in the manual.

Rating & cooling: EN 60034-1 S1 continuous; insulation class F; cooling self-cooled, free-circulation surface cooling IC4A0A0; thermal protection KTY83-110 (up to rev C7) / AM-LPTC1000 (rev C8/C9), max winding temp 155 degC (110 degC EnDat / 130 degC resolver via ACOPOS); vibration severity A2 per EN 60034-14; bearing life per DIN ISO 281; coating water-based RAL 9005.

Mounting per EN 60034-7 (IM): IM 3001 horizontal / IM 3011 vertical standing / IM 3031 vertical hanging. Center hole DIN 332 Form F; shaft end DIN 748 Form E; oil seal DIN 3760 Form A; key DIN 6885-1 Form A; flange DIN 42948 Form A; runout DIN 42955 tolerance R.

Environment: operating -15..+40 degC (max +55 degC); derate 10%/10 K above 40 degC, 5% per 1000 m above 1000 m; max. elevation 2000 m; max. flange temp 65 degC; IP64 per EN 60034-5 (IP65 with optional oil seal DIN 3760); storage/transport -20..+60 degC, humidity max. 90% non-condensing.

Shaft loads: permissible radial force per model (Fr vs distance/speed diagrams); maximum axial force Famax = 121 N (8LSN4x frames) / 131 N (8LSN5x frames). Noise: no motor-body sound level given in the manual.

Feedback: resolver or EnDat - inductive (DA,DB,EA,EB,SA,SB) or optical (D0,D1,E0,E1,S0,S1); EnDat 2.2 preferred over 2.1; functional-safety position measurement available on selected variants. speedtec / itec connectors; single-cable (htec + speedtec, size 1) option.

Safety: encoders for functional safety available; STO implemented by ACOPOS servo drive (not motor-embedded in the manual).