# B&R 8LSA Series Service Manual

8LSA63.ee022ffgg-3

## 1. Description

8LSA three-phase synchronous servo motor (self-cooled, slim & elongated design). Permanent-magnet, electronically commutated synchronous motor for applications requiring high dynamics, positioning precision, compact size and reduced weight. Universally usable thanks to a large overload capacity, with reduced cogging, optimized torque rippling for good controllability, an embedded parameter chip for automatic drive identification, and encoders for functional safety available.

## 2. Technical Parameters

| Parameter | Value |
|---|---|
| Nominal speed nN [rpm] | 2200 |
| Number of pole pairs | 4 |
| Nominal torque Mn [Nm] | 11.8 |
| Nominal power PN [W] | 2719 |
| Nominal current IN [A] | 5.3 |
| Stall torque M0 [Nm] | 12.5 |
| Stall current I0 [A] | 5.6 |
| Maximum torque Mmax [Nm] | 46.92 |
| Maximum current Imax [A] | 30.5 |
| Maximum speed nmax [rpm] | 9000 |
| Torque constant KT [Nm/A] | 2.22 |
| Voltage constant KE [V/1000rpm] | 134.04 |
| Stator resistance R2ph [Ohm] | 2.265 |
| Stator inductance L2ph [mH] | 24.29 |
| Electrical time constant tel [ms] | 10.7 |
| Thermal time constant ttherm [min] | 42 |
| Moment of inertia J [kg·cm2] | 8.19 |
| Mass m (without brake) [kg] | 12.8 |
| Holding torque of brake MBr [Nm] | 32 |
| Brake mass [kg] | 1.5 |
| Moment of inertia of brake JBr [kg·cm2] | 5.85 |
| Cable cross-section [mm2] | 0.75 |
| Connector size/type | 1.0 |
| Recommended servo drive (ACOPOS) | 8X8X |

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## 3. Product Information

Order number: 8LSA63.ee022ffgg-3

Additional information from the manufacturer's manual:

Compliance: UL/C-UR-US listed, UL file E360421; conforms to Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU; standards EN 60034-1/7/11/14, UL 1004-1 & UL 1004-6, CSA C22.2 no. 100-14. Life-cycle status not stated in the manual.

Rating & cooling: EN 60034-1 S1 continuous; insulation class IEC 60085 F; cooling self-cooled, free-circulation surface cooling IC4A0A0; thermal protection KTY83-110 (up to rev C7) / AM-PTC1000 (rev C8/C9), max winding temp 155 degC (limited via ACOPOS to 110 degC with EnDat, 130 degC with resolver); vibration severity A1 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 attached / IM 3031 vertical standing. Flange DIN 42948 Form A; shaft end DIN 748 Form E; oil seal DIN 3760 Form A; key/keyway DIN 6885-1 Form A; balancing DIN ISO 8821; runout DIN 42955 tolerance R.

Environment: operating -15..+40 degC (max +55 degC); derate 10% per 10 K above 40 degC and 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/axial forces are speed-dependent (Fr/Fa diagrams per model in the Technical data chapter); optional 'Reinforced A-side bearing' (sizes 4-8) increases allowable Fr/Fa. Noise: no motor-body sound level given; fan noise is only specified for fan-cooled variants (8LSC).

Feedback: resolver (R0/R2) or EnDat encoder - inductive (D8,D9,DA,DB,EA,EB,S8,S9,SA,SB) / optical (D0,D1,D4,D5,E0,E1,E4,E5,S0,S1,S4,S5); 32-line single-turn or multi-turn; encoders for functional safety available. Built-in plug-in (incl. swivel/SpeedTec-type) connectors; single-cable (hybrid) solution available.

Safety: motor encoders support functional safety (safety-related position measurement); STO is implemented by the connected ACOPOS servo drive (not a motor-embedded function in this manual).

Generation coverage note: this 8LSA63 motor is generation -3. B&R has NOT published a -4 generation document for the 8LSA63 frame; the -4 generation update covers only 8LSA23-27/34-47/53-57 and 8LSC44-47/53-57 (8LSCB3-B6).