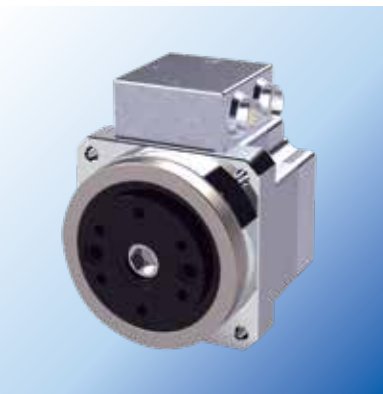


NEW

HarmonicDrive®

Rotary Actuators with Integrated Servo Drive

Simplify with our New,
Innovative Family of Compact
Rotary Actuators with
Integrated Servo Drives!



The Servo
Drive is
Inside!

The Integrated Series is a family of compact actuators that deliver high torque with exceptional accuracy and repeatability. These servo actuators feature high precision Harmonic Drive[®] gearing combined with a brushless servo motor, a brake option (for SHA models), magnetic absolute encoders and an **Integrated Servo Drive with CANopen[®] or EtherCAT[®]** (for LPA or SHA models) communication options. This revolutionary product eliminates the need for an external drive and greatly simplifies cabling, yet delivers high-positional accuracy and torsional stiffness in a compact housing.

■ Features

- Actuator + Integrated Servo Drive with CANopen[®] or EtherCAT[®] (for LPA or SHA models) Communication Options
- CANopen Option Features
 - Only a single cable with 4 conductors is needed for power and communication: CANH, CANL, VDC, 0VDC
 - Up to 127 devices can be connected with bus or line topology options
- EtherCAT Option Features
 - Approximately 100x faster compared to CANopen (100Mbps vs 1Mbps)
 - Up to 200x more deterministic than CANopen (1 μ s vs 100 μ s -200 μ s)
 - Up to 65,536 devices can be connected with line, star, tree or ring topology options
- 24VDC or 48VDC Nominal Supply Voltage
- Zero Backlash Harmonic Drive[®] Gearing
- Panel Mount or Free Mount sealed connectors with radial and axial options
- Dual Absolute Encoders (on FHA, LPA and SHA models)
- Control Modes include: Torque, Velocity, and Position Control as well as CSP, CSV, and CST
- Harmonic Drive HDL Commissioning Software

**EtherCAT[®]
Coming
Soon!**

Options:

- Flex-rated cables with sealed connectors
- 4 I/O (for FHA, LPA and SHA models)
 - 2 NPN or PNP Opto-Isolated Digital Inputs
 - 2 Programmable Analog/Digital Inputs or Open Drain Outputs

■ The Family of Integrated Actuators



RSF 5



RSA 8



FHA C



Coming Soon! LPA 20

Rotary Actuator with Integrated Servo Drive



Specifications

Model Item	RSF-5	RSA-8	FHA-8C	FHA-11C	FHA-14C	LPA-20	SHA-20	SHA-25	SHA-32
Max Torque ¹ (Nm)	0.5-1.4	1.8-4.8	1.8-4.8	4.5-11.0	9.0-28.0	34-57	68-120	100-229	146-177
Max Speed ¹ (rpm)	45-150	85-283	60-200	60-200	60-200	50-98	20-63	24-75	16-50
Allowable Moment Load (Nm)	0.89 ²	3.46 ²	15	40	75	93	187	258	580
Motor Encoder Resolution	14 bit	14 bit	15 bit	15 bit	15 bit	15 bit	17 bit	17 bit	17 bit
Output Encoder Resolution	N/A	N/A	14 bit	14 bit	14 bit	14 bit	16 bit	16 bit	16 bit
Nominal Voltage (VDC)	24	24	24	24	24	48	48	48	48
Optional I/O	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard Connector Option	Connector on Pigtail	Connector on Pigtail	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount	Panel Mount
Brake	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes
Output Configuration	Shaft or Flange	Shaft or Flange	Flange	Flange	Flange	Flange	Flange	Flange	Flange
Hollow Shaft Diameter (mm)	N/A	N/A	N/A	N/A	N/A	N/A	17	27	35
Mounting Shape	Square	Square	Square	Square	Square	Square	Round	Round	Round
Mounting Size (mm)	22	30.7	50	60	75	92	144	175	225
Length (mm)	48.5	56	49	55.5	65.5	66.1	108.5 ³	120 ³	125 ³

1. Depending on gear reduction ratio.

2. For flange output configuration.

3. Overall length at connector area is longer.



SHA 20



SHA 25



SHA 32

■ HDL- IDE 3.0 Software:

HDL-IDE 3.0 software provides the ability to setup or commission the Integrated actuators without connecting to a CANopen or EtherCAT master controller. A single actuator can connect to a personal computer or laptop with a CAN communication converter and a power supply. All 256 parameters, including the tuning parameters and 256 general user variables can be set and stored to be recognized by the master controller operating the specific application. The following are some of the features included in HDL-IDE 3.0 software:

■ Features

- Torque Mode and Graph
- Velocity Mode and Graph
- Position Mode and Graph
- Homing Mode
 - Limit Switch
 - Current Position
 - Hardstop Homing
- Step Response
- Bode Plot
- Parameter List
- Virtual Mode
- Common Features for all Actuators



Position Mode and Graph

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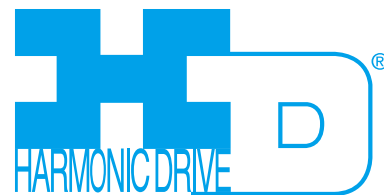
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