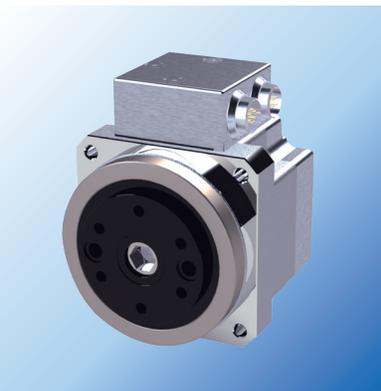


**NEW**

# HarmonicDrive®

**Rotary Actuators with Integrated Servo Drive**

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



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<sup>®</sup> gearing combined with a brushless servomotor, a brake, magnetic absolute encoders and an **Integrated Servo Drive with CANopen<sup>®</sup> Communication**. 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<sup>®</sup> Communication
- 24VDC or 48VDC Nominal Supply Voltage
- Single Cable with only 4 conductors is needed: CANH, CANL, VDC, 0VDC
- Up to 127 axis on a single bus
- Zero Backlash Harmonic Drive<sup>®</sup> Gearing
- Panel Mount Connectors with radial and axial options
- Dual Absolute Encoders (on FHA, LPA and SHA models)
- Control Modes include: Torque, Velocity, and Position Control, CSP, CSV, CST
- Harmonic Drive HDL Software

### **Options:**

- Flex-rated cables with sealed connectors
- 4 I/O
  - 2 NPN or 2 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



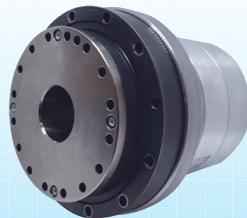
## Specifications

| Model<br>Item                | RSF-5                | RSA-8                | FHA-8C      | FHA-11C     | FHA-14C     | LPA-20      | SHA-20             | SHA-25           | SHA-32           |
|------------------------------|----------------------|----------------------|-------------|-------------|-------------|-------------|--------------------|------------------|------------------|
| Max Torque <sup>1</sup> (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 <sup>1</sup> (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 <sup>2</sup>    | 3.46 <sup>2</sup>    | 15          | 40          | 75          | 93          | 187                | 258              | 580              |
| Motor Encoder Resolution     | 14 bit               | 14 bit               | 15 bit      | 15 bit      | 15 bit      | 15          | 17 bit             | 17 bit           | 17 bit           |
| Output Encoder Resolution    | N/A                  | N/A                  | 14 bit      | 14 bit      | 14 bit      | 14          | 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      |
| 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 <sup>3</sup> | 120 <sup>3</sup> | 125 <sup>3</sup> |

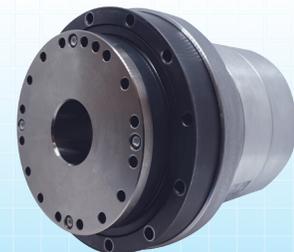
1. Depending on gear reduction ratio.
2. For flange output configuration.
3. Overall length at connector area is longer.



Coming Soon! SHA 20



SHA 25



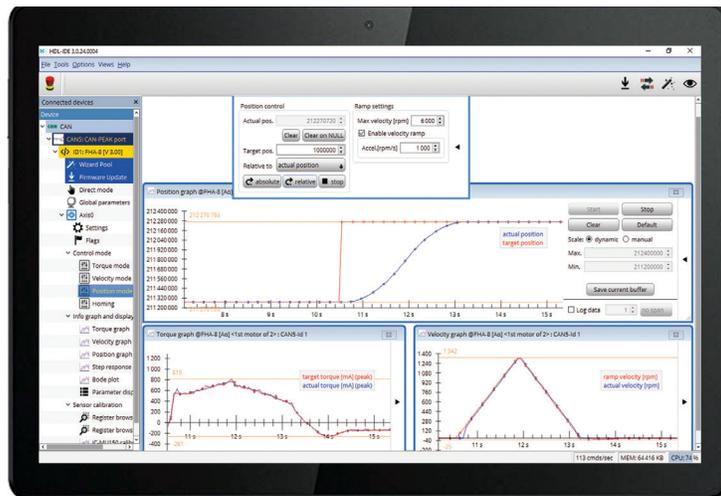
SHA 32

## ■ 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 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 CANopen 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 (shown)



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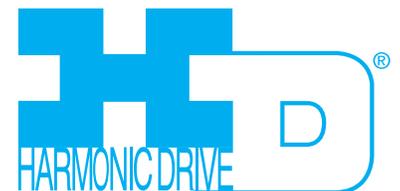
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