638 Series
Servo Drive from 1 to 15 A
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## Servo Drive - 638 Series

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Servo Drive - 638 Series

Overview

Description
638 series servo drives are suitable for all servo applications, from simple speed or current control to most complex positioning applications. The processor of 638 series servo drives gives a rapid response time to the control circuits of 105 µs. Numerous expansion slots allow 638 series servo drives to reach a high degree of versatility, opening access to a wide variety of fieldbus communication and feedback sensors options.

Features
- Integrated motion controller
- 230 or 400 VAC direct power supply
- STO: Safety torque off in accordance with EN13489-1 Category 3, Performance Level d and EN1037 as standard
- Ultra-fast control loops (105 µs)
- Embedded PLC functions
- Programmable electronic cam
- 3 configurable trajectory generators
- Multi-axis synchronization through process bus
- Numerous fieldbuses options
- Hiperface and SSI encoder inputs options
- Optional flash memory chip for data storage
- Simple commissioning and programming Software

Technical Characteristics - Overview

<table>
<thead>
<tr>
<th>638 Servo drives</th>
<th>Supply voltage</th>
<th>Permanent current [Arms]</th>
<th>Peak current [A]</th>
<th>Overload</th>
<th>Operating temperature</th>
<th>Humidity</th>
<th>Altitude</th>
<th>Product enclosure rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1*230 VAC (±10 %), 50 - 60 Hz</td>
<td>1...15</td>
<td>2...30</td>
<td>200 % during 5 s</td>
<td>0...40 °C</td>
<td>&lt; 85 % relative humidity non-condensing</td>
<td>1000 m (1 % derating per 100 m up to 4000 m)</td>
<td>IP20</td>
</tr>
</tbody>
</table>
## Technical Characteristics

### Technical Data

<table>
<thead>
<tr>
<th>Model 638....F0STO</th>
<th>Unit</th>
<th>A013</th>
<th>A023</th>
<th>A043</th>
<th>A063</th>
<th>B036 (1)</th>
<th>B056 (1)</th>
<th>B086 (1)</th>
<th>B106 (1)</th>
<th>B156 (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supply and currents</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Supply voltage [V]</td>
<td>1*230 VAC (±10 %), 50 - 60 Hz</td>
<td>3*230 VAC (±10 %), 50 - 60 Hz</td>
<td>3*400 VAC (±10 %), 50 - 60 Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent current [Aeff]</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>2.5</td>
<td>5</td>
<td>7.5</td>
<td>10</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Peak current (200 % for 5 s) [A]</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Frame size</td>
<td>A</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Control voltage [V]</td>
<td>24 VDC</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0...40 °C (2 % derating per °C between up to 50 °C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt; 85 % relative humidity non-condensing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Altitude</td>
<td>1000 m (1 % derating per 100 m up to 4000 m)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Product enclosure rating</td>
<td>IP20</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Also available with 230 and 480 VAC power supply

### Input / outputs (X10 Plug)
- 8 Digital inputs (24 V) including 2 interrupts
- 5 Digital outputs (24 V) including 3 opto-coupled (configurable) and 2 relays (1 configurable, 1 for drive ready)
- 2 Analog inputs (0 - 10 V, ±10 V)
- 2 Analog outputs (±10 V)

### Configurable feedback interface (X30 plug)
- Resolver input (standard)
- Hiperface encoder input (option)
- Sine / Cosine encoder input (option)

### Optional Flash memory chip (X300 - module)
- Storage of complete drive data (firmware, function code, parameters, applications program)

### Configurable multi-function interface (X40 plug)
- Incremental encoder input
- Incremental encoder output
- Stepper-motor input
- Absolute single or multi-turn SSI encoder input

### Communication
- Serial communication (COM1 Interface) RS232
- Application communication (COM2 Interface)
  - RS232, RS422, RS485
  - Profinet-PD
  - CANopen DS402
- Inter axis communication (COM3 Interface) Parker System bus / RS485

### I/O extension
- 5 Digital Inputs / 2 Digital Outputs (COM2 Interface)
- 14 Digital Inputs / 10 Digital Outputs (X200 Plug)
- 4 Digital Inputs / 4 Digital Outputs (X120 Plug)

### Safety
- STO: Safety torque off in accordance with EN13489-1 Category 3, Performance Level d and EN1037 as standard (connector STO X11)
- Brake / PTC output (BR/TH X62 Plug)

### Standards & Conformance
- CE marked:
  - EN61800-3 (EMC compliance) with integral filter
  - EN50178 (Safety, low voltage)
- UL certification
### Dimensions

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</tr>
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<tbody>
<tr>
<td>638A</td>
<td>1 ... 6</td>
<td>56</td>
<td>250</td>
<td>232</td>
<td>28</td>
<td>211</td>
<td>1.6</td>
</tr>
<tr>
<td>638B</td>
<td>2.5 ... 5</td>
<td>66</td>
<td>318.6</td>
<td>44</td>
<td>44</td>
<td>281.25</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>7.5 ... 15</td>
<td>86</td>
<td></td>
<td>64</td>
<td></td>
<td></td>
<td>4.4</td>
</tr>
</tbody>
</table>

### Accessories

#### EASYRIDER Software

EASYRIDER is a graphical software for the 630 series providing a single user interface for accessing all drive parameters, programming motion and calibrating the drive. This unique assistant offers an autopilot mode helping user in all phases of application set-up: from the choice of the motor in the motor library to the drive auto adjustment. All set-up steps are extremely simplified. EASYRIDER gives also the possibility to develop advanced motion in an intuitive way using its BIAS language.

#### Features

- Intuitive and easy use
- Set-up assistant
- Integrated motor library
- Oscilloscope function
- Drive and fieldbus diagnostic
- Drive advanced programming
# Order Code

<table>
<thead>
<tr>
<th>Order example</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>638</td>
<td>x</td>
<td>xx</td>
<td>3</td>
<td>F</td>
<td>0</td>
<td>STO</td>
<td>000</td>
<td>EAE</td>
<td>RD2</td>
<td>RM1</td>
<td>X7x</td>
</tr>
</tbody>
</table>

| 1 Series       | 638 | 638 series |
| 2 Frame size   |     |            |
| A Size A       | 638 |            |
| B Frame B      |     |            |
| 3 Nominal current |     |            |
| 01 1 A         |     |            |
| 02 2 A         |     |            |
| 04 4 A         |     |            |
| 06 6 A         |     |            |
| 03 2.5 A       |     |            |
| 05 5 A         |     |            |
| 08 7.5 A       |     |            |
| 10 10 A        |     |            |
| 15 15 A        |     |            |
| 4 Intermediate circuit voltage |     |            |
| 3 325 VDC / 230 VAC |     |            |
| 6 565 VDC / 400 VAC |     |            |
| 7 678 VDC / 480 VAC |     |            |
| 5 Filter       |     |            |
| F With integrated filter (Standard) |     |            |
| A Less leakage current (AC side Y capacitors deactivated, JP600 open) |     |            |
| 6 EMC clip     |     |            |
| 0 Without EMC - clip (Standard) |     |            |
| 7 Safety technology |     |            |
| STO Safe Torque Off (Standard) |     |            |
| 8 Additional option module RP xxx via COM2 |     |            |
| 9 Additional option module on the drive via X200 |     |            |
| 000 No option |     |            |
| EAE I/O Interface |     |            |
| CCA (1) Parker System bus + RS485 |     |            |
| CC8 (1) Parker system bus + 4 inputs and 4 outputs + RS485 |     |            |
| 10 X300 Functions module |     |            |
| RD2 Standard X30 Resolver module |     |            |
| HF2 HIPERFACE Module |     |            |
| SC2 Sine/Cosine Module |     |            |
| 11 With memory chip |     |            |
| RM1 Resolver + Memory-Module |     |            |
| HM1 HIPERFACE + Memory Module |     |            |
| SM1 Sine/Cosine + Memory Module |     |            |
| EM1 EnDat + Memory module |     |            |
| 12 Additional option |     |            |
| empty no additional options |     |            |
| X7x Ready - contacts X10.7 - X10.8 |     |            |
| BSx Moisture / condensation protection |     |            |

(1) Cannot be combined with CCA, CC8, PC8, PCA No CANopen DS402

## Notes
- Slot 
- (A) A, B
- (B) A
- (C)
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