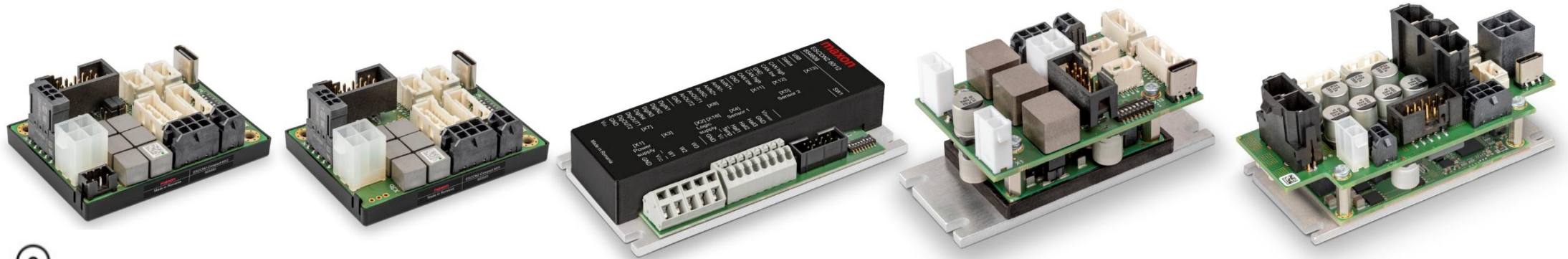


# ESCON2

maxon's servo controller product line for speed and current control of brush DC and brushless DC (= EC) motors



Easy-to-use



Efficient



Powerful



<https://escon.maxongroup.com>

# Your application and motion demands?

- **Robotics:**
  - Force-sensitive grippers, Haptic feedback systems
- **Automation & Intralogistics:**
  - Conveyors, Wheel drives, Door drives
- **Industry & Medical:**
  - Drilling, cutting, milling, winding machines & tools
  - Tightening tools, Tensioners, Stapler, Screwdrivers
- **Industry & Lab devices:**
  - Centrifuges, Pumps
  - Capping / Decapping tools
- **Multi-purpose:**
  - Ventilation fans, Scanners, Lidars, Radars, ...

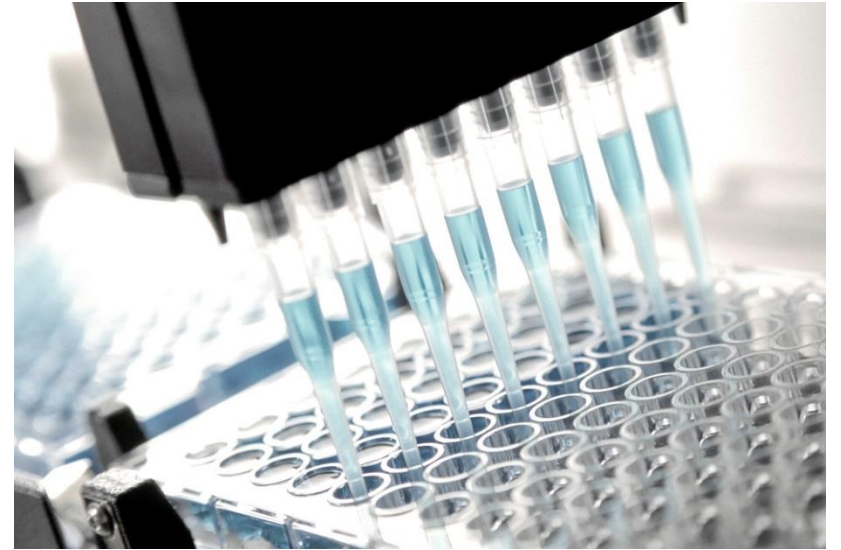
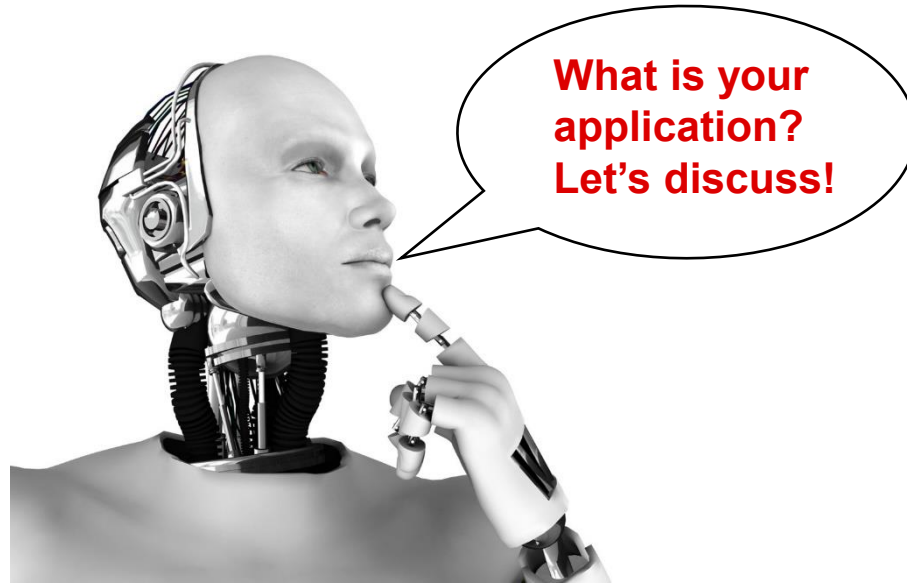
Speed control	Torque control
	🎯
🎯	
🎯	
🎯	🎯
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# Intralogistics, AGVs, Rovers, Power tool, Access systems



# Medical tools, Lab tools, Rehabilitation



# What matters too?

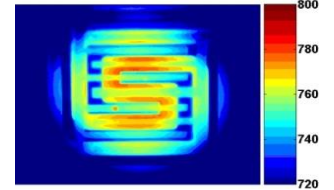
## Power density counts

Compact in size plus high power output.

=> Base of hand tools or saving space in cabinets.



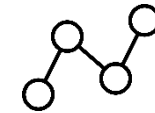
**Powerful**



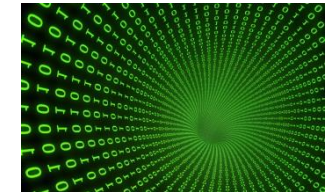
## Highly dynamic motor operation and control

Steep acceleration and precise motion.

=> Ensures machine's high throughput and accuracy.



**Dynamic**



## Open interfaces

Compatible with standards.

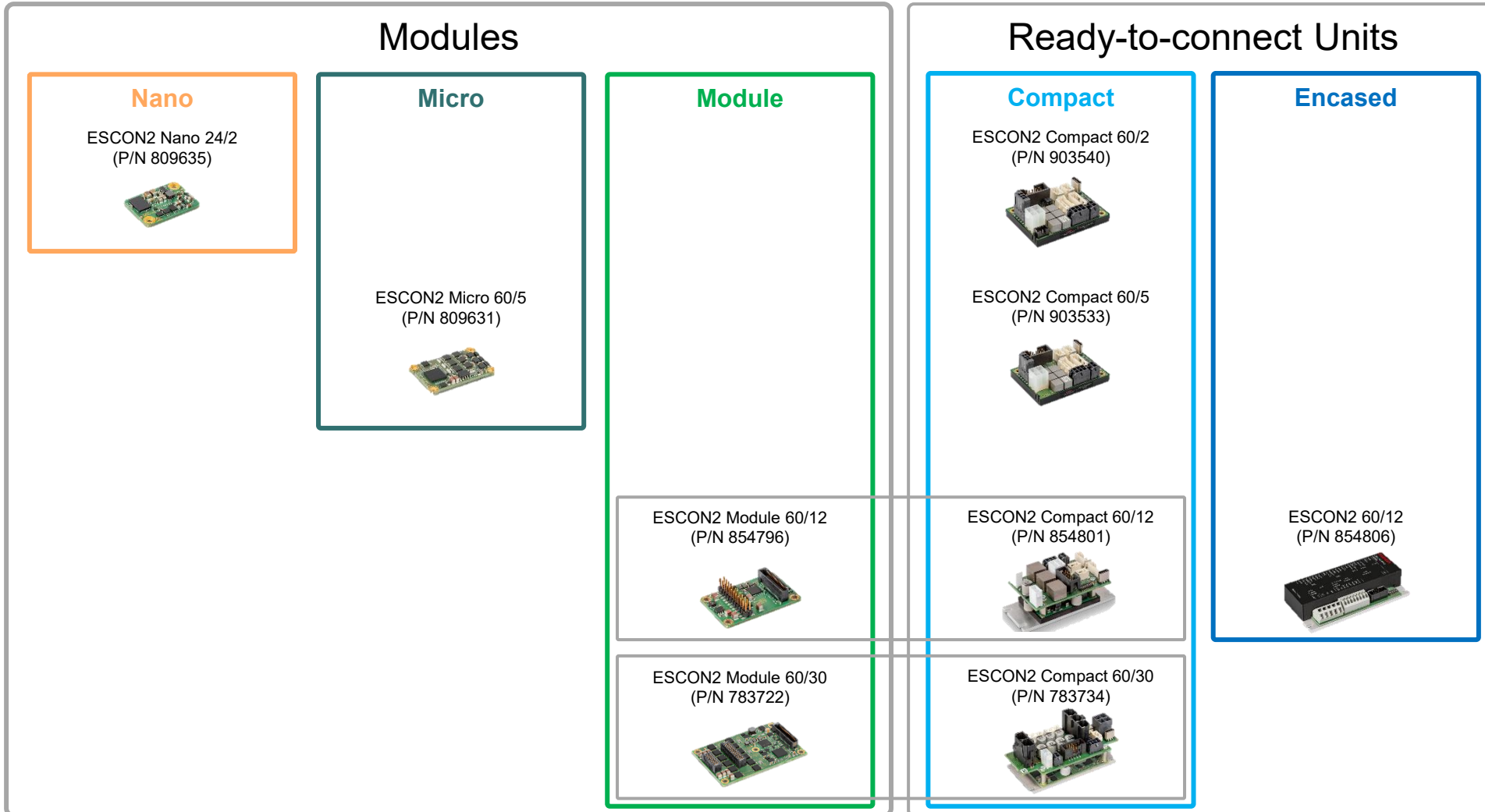
=> Fitting into your system's design.



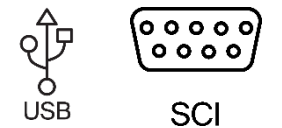
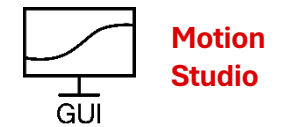
**Modular**



# The solution (whatever matters): maxon's Servo controller **ESCON2** product line



-  Easy-to-use
-  Efficient
-  Powerful
-  High functionality and performance



# ESCON2: Product type naming explained

## ESCON2's power rating: ESCON2 ... VV/AA

- **VV:** Max. supply voltage, e.g. 24V or 60V
- **AA:** Max. continuous output current, e.g. 2A, 5A, 12A, or 30A
  - ... 60/30, ... 60/12: Peak output current can be 2 times higher for some seconds
  - ... 60/5, ... 60/2, ... 24/2: Peak output current can be 3 times higher for some seconds

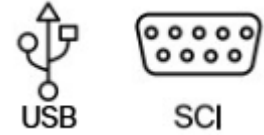
## ESCON2's product style: Nano, Micro, Module, Compact, Encased

- **Compact and Encased:**  
Ready to connect due to integrated connectors, motor filters, etc.
- **Nano, Micro, Module:**  
Designed to be mounted on a device's main PCB (= so-called Motherboard)  
which holds add-on components depending on the motor and device requirements.

# ESCON2: It is compatible!

## Compatible, simple to use interfaces for commanding

- Digital and analog I/Os, CANopen, USB, SCI (Serial communication)
- Commanding of multiple pre-configured functions simply by applying analog and digital signals
- Precise commanding and feedback data processing of speed, torque and I/Os based on **CANopen CiA301 and CiA402** standard



## Standardized feedback sensor interfaces

- Hall sensors
- Incremental encoders
- Absolute encoders (SSI, BiSS-C)



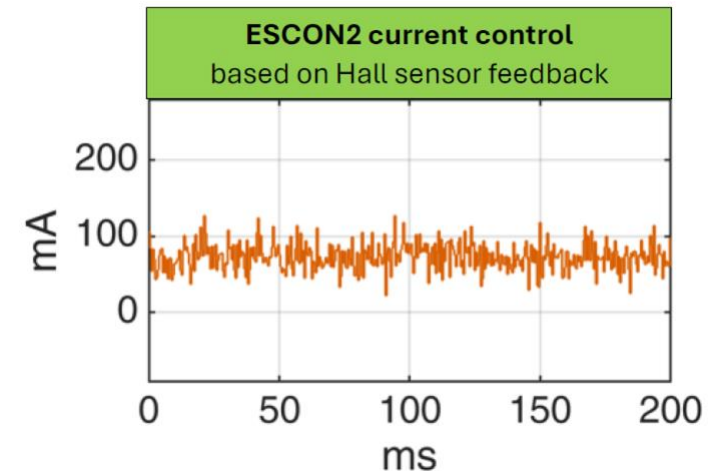
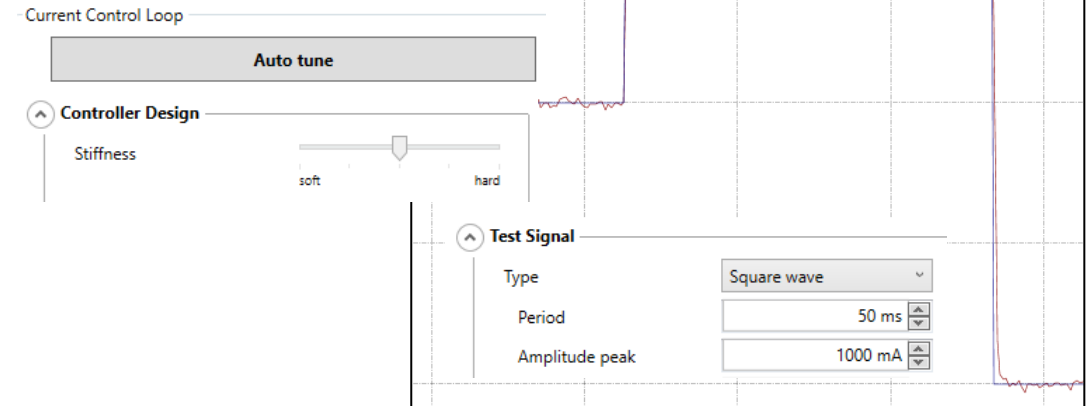
SSI



# ESCON2: Control up to the limits!

## FOC – Field oriented control (for all sensor types)

- Velocity control: 10 kHz
- Current / Torque control: 50 kHz
  - ❖ **Always FOC** for less torque ripple!  
even if just Hall sensors are present
- Smooth motor operation even in case of “Hall sensors only”.  
Optimized rotor position detection based on maxon patent.
  - ❖ **Less velocity ripple**
  - ❖ **Lower motor current noise**
  - ❖ **Improved energy efficiency**



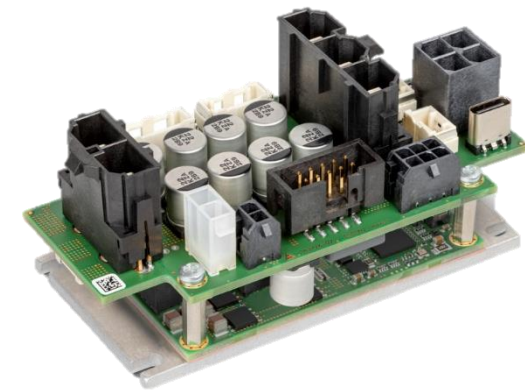
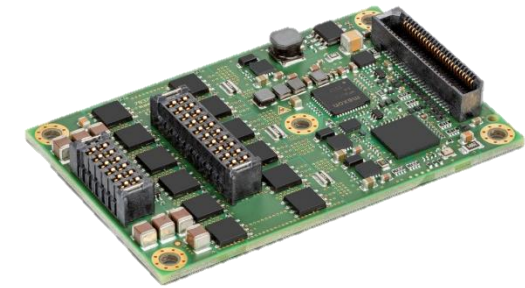
# ESCON2 Module 60/30, Compact 60/30:

Pure power!

## “ESCON2 Module / Compact 60/30”:

- **1800 W continuous** motor power output (60V / 30A)  
**3600 W peak** motor power output (60V / 60A max. 4 s)
- “ESCON2 Module 60/30” (P/N [783722](#)):  
67.0 x 43.0 x 7.8 mm / 19 g
- “ESCON2 Compact 60/30” (P/N [783734](#)):  
93.5 x 46.0 x 41.0 mm / 128 g

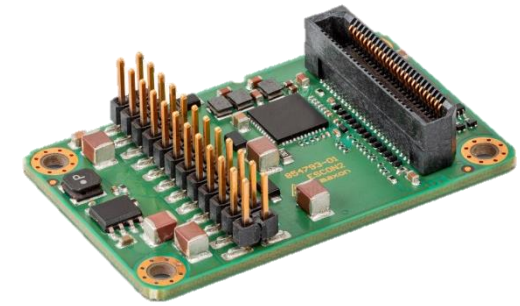
**Most powerful ever  
but still surprisingly small.**



# ESCON2 Module 60/12, Compact 60/12, 60/12: Perfect mid-range!

## “ESCON2 ... 60/12”:

- 720 W cont. (60V / 12A)  
1440 W peak (60V / 24A, max. 5 s)
- “ESCON2 Module 60/12” (P/N [854796](#)):  
49.5 x 31.0 x 12.4 mm / 12 g
- “ESCON2 Compact 60/12” (P/N [854801](#)):  
81 x 41 x 33.5 mm / 90 g
- “ESCON2 60/12” Encased (P/N [854806](#)):  
116 x 67 x 24 mm / 182 g



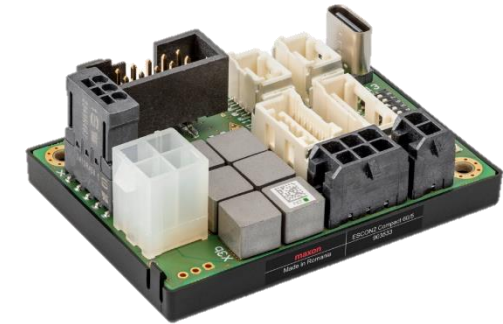
**Common power rating  
fitting for lots of applications.**

# ESCON2 Compact 60/5, Compact 60/2:

## Ready to connect

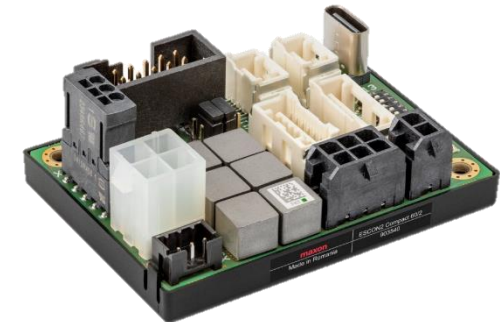
### “ESCON2 Compact 60/5” (P/N: 903533)

- 300 W cont. (60V / 5A) / 900 W peak (60V / 15A, max. 5s)
- 55.0 x 40.0 x 22.8 mm / 32 g



### “ESCON2 Compact 60/2” (P/N 903540)

- 120 W cont. (60V / 2A) / 360 W peak (60V / 6A, max. 30s)
- 55.0 x 40.0 x 22.8 mm / 32 g



**Ready for easy commissioning.  
Prototyping, testing, and series production.**

Both types look almost the same?  
Find the difference ;-).

# ESCON2 Micro 60/5, Nano 24/2:

**Smaller, smallest!**

## **Smaller: “ESCON2 Micro 60/5”** (P/N: [809631](#))

- 300 W cont. (60V / 5A) / 900 W peak (60V / 15A, max. 4s)
- 36.8 x 23.8 x 6.5 mm / 6 g



## **Smallest & light-weight: “ESCON2 Nano 24/2”** (P/N: [809635](#))

- 48 W cont. (24V / 2A) / 144 W peak (24V / 6A, max. 6.5s)
- 23.0 x 16.0 x 4.5 mm / 2 g



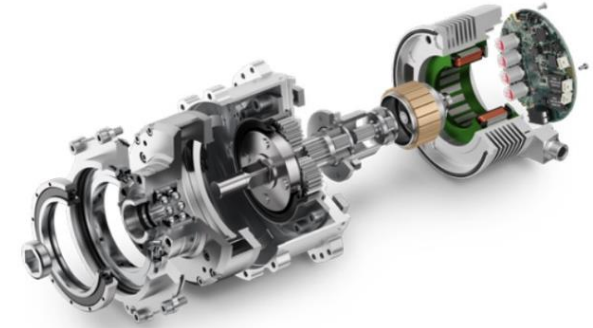
**It is not a post stamp** (although similar in size).

**It is a motor controller!**

# Motion Studio: Fast and efficient commissioning



Motion Studio



The screenshot displays the Motion Studio software interface for commissioning an ESCON2 motor. The main window is titled "Data Recorder" and shows a graph with three data channels: "Current actual value" (red), "Velocity actual value averaged" (blue), and "Digital Hall sensor pattern" (green). The current graph shows a noisy red line fluctuating around a blue trapezoidal velocity profile. The digital hall sensor pattern is a green square wave. Below the graph, there are control buttons for "Start", "Stop", and "Force Trigger".

On the left, the "Properties" panel shows the motor's configuration, including communication settings (Refresh Rate: 100 ms), version information (Software Version: 0x8100), and miscellaneous details (Name: ESCON2, User Level: Standard).

At the bottom, the "Object Dictionary" panel lists various parameters with their indices, sub-indices, names, types, bits, access permissions, and current values. For example, the "Current actual value" is 19 mA, and the "Velocity actual value averaged" is 2996 rpm.

The "Status Monitor" at the bottom shows 0 errors and 0 warnings.



Easy-to-use



Graphical User Interface

# Motion Studio: All tools within one package

## Intuitive wizards for configuration and commissioning

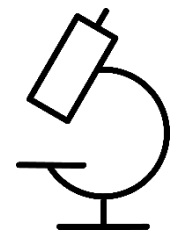
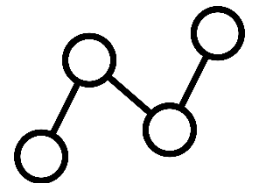
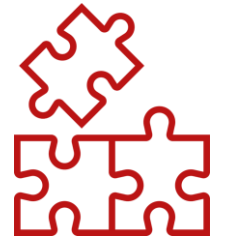
- Startup – Configure the motors, sensor, I/Os data and features
- Regulation tuning – Get automatically optimized control parameters
- CANopen wizard – Configure your CANopen PDOs easily

## Tools for testing and analysis

- Profile Velocity Mode, Cyclic Sync Velocity Mode, I/O Velocity Mode
- Cyclic Sync Torque Mode, I/O Current Mode
- I/O Monitor

## Tools for parameter access and analysis

- Object Dictionary
- Data recorder



# Add-on resources

## ➤ maxon website

- <https://escon.maxongroup.com>

## ➤ Video tutorials

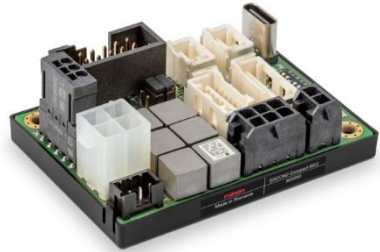
- [“Motion Studio - Getting Started”](#)
- [“Startup Wizard DC motor”](#) / [“Startup Wizard EC motor”](#)
- [“Startup Wizard I/O configuration”](#)
- [“Regulation tuning”](#)

## ➤ Documentation

- Feature Chart, Hardware Reference(s)
- Communication Guide, Firmware Specification
- [maxon’s catalog](#) (-> Motor & motion control)



# ESCON2: What product type fits best for you?



ESCON2  
Compact 60/2  
P/N 903540



ESCON2  
Compact 60/2  
P/N 903533



ESCON2 60/12  
P/N [854806](#)



ESCON2  
Compact 60/12  
P/N [854801](#)



ESCON2  
Compact 60/30  
P/N [783734](#)

<https://escon.maxongroup.com>



ESCON2  
Nano 24/2  
P/N [809635](#)



ESCON2  
Micro 60/5  
P/N [809631](#)



ESCON2  
Module 60/12  
P/N [854796](#)



ESCON2  
Module 60/30  
P/N [783722](#)