


# ESCON

# Feature Chart

The ESCON servo controllers are small-sized, powerful 4-quadrant PWM servo controller for the highly efficient control of permanent magnet-activated DC motors.

The featured operating modes – speed control (closed loop), speed control (open loop), and current control – meet the highest requirements. The ESCON servo controllers are designed being commanded by an analog set value and features extensive analog and digital I/O functionality and are being configured via USB interface using the graphical user interface «ESCON Studio» for Windows PCs.

Feature	ESCON 36/2 DC (403112)
Product image	

Motors	
DC motors up to	72 W

Sensors	
Digital Incremental Encoder (2 channel with or without Line Driver)	✓
DC Tacho	✓

Electrical Data	
Nominal operating voltage	10...36 VDC
Max. output voltage	$V_{CC}$
Max. output current	4 A (<60 s)
Continuous output current	2 A
Pulse Width Modulation frequency	53.6 kHz
Sampling rate PI current controller	53.6 kHz
Sampling rate PI speed controller	5.36 kHz
Max. efficiency	95%
Max. speed	limited by max. permissible speed (motor) and max. output voltage (controller)
Built-in motor choke	300 $\mu$ H / 2 A

(nnnnn) = order number

Feature	ESCON 36/2 DC (403112)
Inputs / Outputs	
Encoder signals	A,A\,B,B\
Max. encoder input frequency differential (single-ended)	1 MHz (100 KHz)
Potentiometer	1
Digital inputs	2
Digital inputs/outputs	2
Analog inputs	2
Resolution	12-bit
Range	-10...+10 V
Circuit	differential
Analog outputs	2
Resolution	12-bit
Range	-4...+4 V
Encoder supply voltage	+5 VDC (I <sub>L</sub> ≤70 mA)
Auxiliary voltage output	+5 VDC (I <sub>L</sub> ≤10 mA)
Status Indicators	Operation green LED / Error red LED

Connections		
J1	Power	pin header (2 mm), 2 poles
J2	Motor	pin header (2 mm), 3 poles
J2A	Motor	spring-loaded contacts, 2 poles
J4	Encoder	pin header (2.54 mm), 5 x 2 poles
J4A	Encoder	pin header (1.27 mm), 5 x 2 poles
J5	Digital I/O	pin header (2 mm), 6 poles
J6	Analog I/O	pin header (2 mm), 7 poles
J7	USB	USB Type micro B female

Mechanical Data	
Weight (approximate)	30 g
Dimensions (L x W x H)	55 x 40 x 16.1 mm
Mounting holes	for M2.5 screws

Environmental Conditions		
Temperature	Operation	-30...+45°C
Temperature	Extended range	+45...+81°C; Derating: -0.056 A/°C
Temperature	Storage	-40...+85°C
Humidity (condensation not permitted)		20...80%

Feature	ESCON 36/2 DC (403112)
<b>Functionality</b>	
<b>Operating Mode</b>	
Current controller (torque control)	✓
Speed controller (closed loop) with encoder feedback	✓
with DC Tacho feedback	✓
Speed controller (open loop) with static IxR Compensation	✓
with adaptive IxR Compensation	(✓)
<b>Set Value</b>	
Analog set value	✓
PWM set value	✓
Fixed set value	✓
2 fixed set values	✓
<b>Digital I/O Functionality</b>	
Enable	✓
Enable CW	✓
Enable CCW	✓
Enable CW + CCW	✓
Enable + Direction	✓
Stop	✓
Ready	✓
Speed Comparator	✓
<b>Monitoring Outputs</b>	
Monitor Current	✓
Monitor Speed	✓
<b>Analog Settings</b>	
Set value	✓
Current limit	✓
Offset adjust set value	✓
Speed ramp (using potentiometer)	✓
P gain current controller (using potentiometer)	✓
P gain speed controller (using potentiometer)	✓
IxR Compensation (using potentiometer)	✓

(✓) = only in use with DC Tacho or Encoder

Feature	ESCON 36/2 DC (403112)
<b>Software</b>	
Installation Program	ESCON Setup
Graphical User Interface	ESCON Studio
<i>Startup</i>	✓
<i>Regulation Tuning</i>	✓
<i>Diagnostic</i>	✓
<i>Firmware Update</i>	✓
<i>Controller Monitor</i>	✓
<i>Parameters</i>	✓
<i>Data Recording</i>	✓
<i>Online Help</i>	✓
Language	English, French, and German (later on also available in Italian, Spanish, Japanese, and Chinese)
Operating System	Windows 7, Windows XP SP3
Communication interface	USB 2.0 (full speed)

Accessories (not included in delivery)		
<i>ESCON 36/2 DC Connector Set</i>	(404404)	✓
<i>ESCON Analog I/O Cable</i>	(403964)	✓
<i>ESCON DC Motor Cable</i>	(403962)	✓
<i>ESCON Digital I/O Cable</i>	(403965)	✓
<i>ESCON Encoder Cable</i>	(275934)	O
<i>ESCON Power Cable</i>	(403957)	✓
<i>ESCON USB Stick</i>	(409286)	✓
USB 2.0 Type A micro-B Cable	(403968)	✓

O = optional