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UCL1/7; UCL2/8

Dimensions (mm)	∅ 28 x 31
Travel (mm)	10/13
Travel per step (mm)	0.041
Speed (mm/s) at 200 Hz	8.33
Max. Force (N)*	70

*Depends on winding, frequency and lifetime required.
Drive against end stops only permissible after clarification of operating conditions and approval by Saia Motors.
Radial forces on the shaft will reduce life time and performance.
Note: All force and power output values are minimum values, at rated voltage and motor temperature 23°C.

Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15 ... +60
Ambient temperature storage	°C -20 ... +100
Thermal resistance at f=0 R_{therm}	29 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	connector type C, D
Protection	IP40 according to DIN EN 60529 : 2014
Weight	67 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

Order Reference

Type	Stepper Motor				UCL	13	N	01	D	1B
Configuration	13	bipolar, standard magnet	73	bipolar, stronger magnet						
	23	unipolar, standard magnet	83	unipolar, stronger magnet						
Approval	N									
Resistance		see next page, Resistance per winding for bipolar or unipolar								
Connection	C	see pages 151, „Connection Types“								
	D									
Shaft	1B	Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions)								

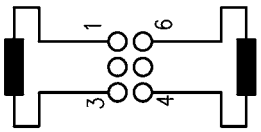
All specifications are representative only and maybe subject to variation. For confirmation of values, please contact Johnson Electric.
Please also read “Saia Motors Important Notes” on catalog or at www.johnsonelectric.com/SaiaMotorsNotes

Technical Data

bipolar	Rated voltage U_N:	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance R_{20}	Ω	24	90	380
	Winding code		05	02	01
unipolar	Rated voltage U_N:	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance R_{20}	Ω	24	90	380
	Winding code		07	08	01
	Travel per step	mm	0.042		
	Winding temperature T_{max}	°C	130		
	Axial play at ± 20 N force	mm	< 0.25		

Circuit diagram

bipolar



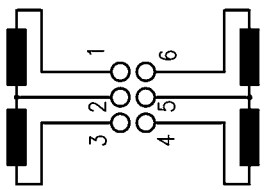
stepping sequence number

pin number	I	II	III	IV	I
1	+	+	–	–	+
3	–	–	+	+	–
4	–	+	+	–	–
6	+	–	–	+	+

Pull in (step I to IV, I to IV, etc.)

Push out (step IV to I, step IV to I, etc.)

unipolar



stepping sequence number

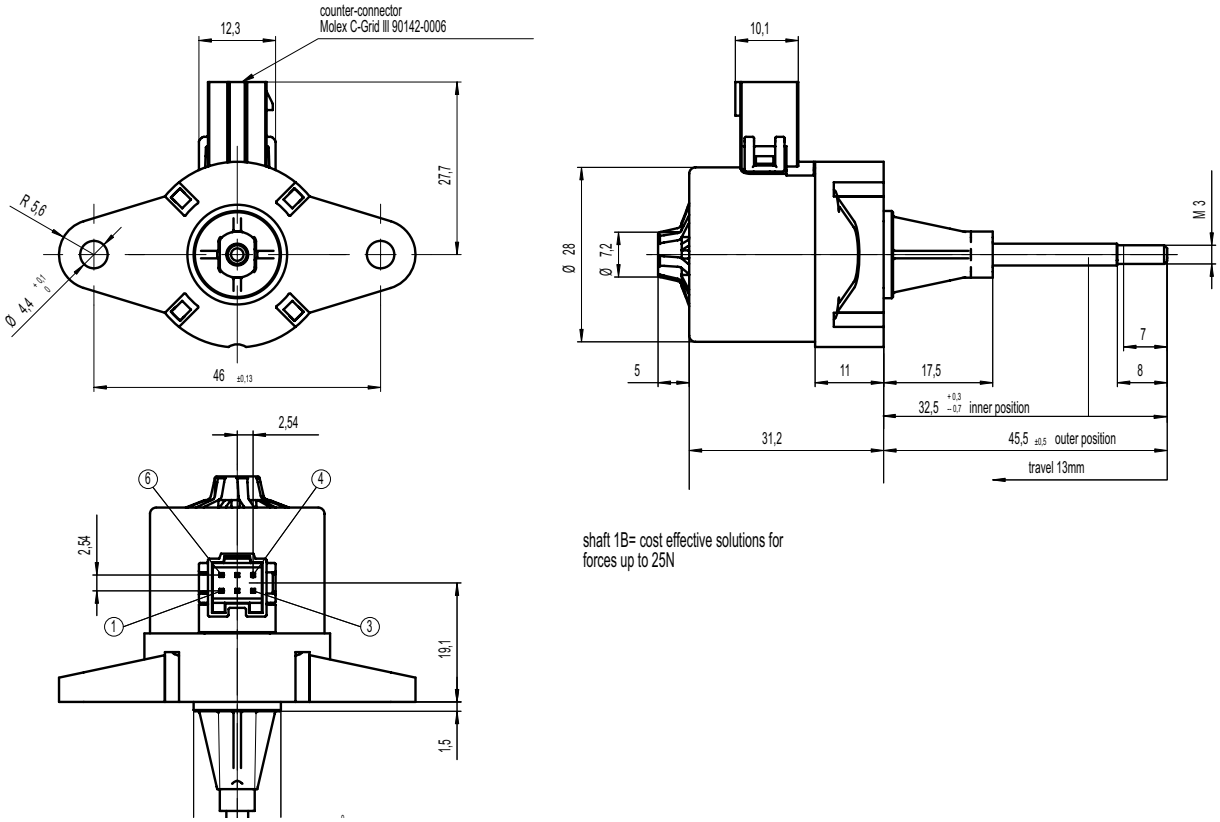
pin number	I	II	III	IV	I
1	–	–			–
2	+	+	+	+	+
3			–	–	
4		–	–		
5	+	+	+	+	+
6	–			–	–

Pull in (step I to IV, I to IV, etc.)

Push out (step IV to I, step IV to I, etc.)

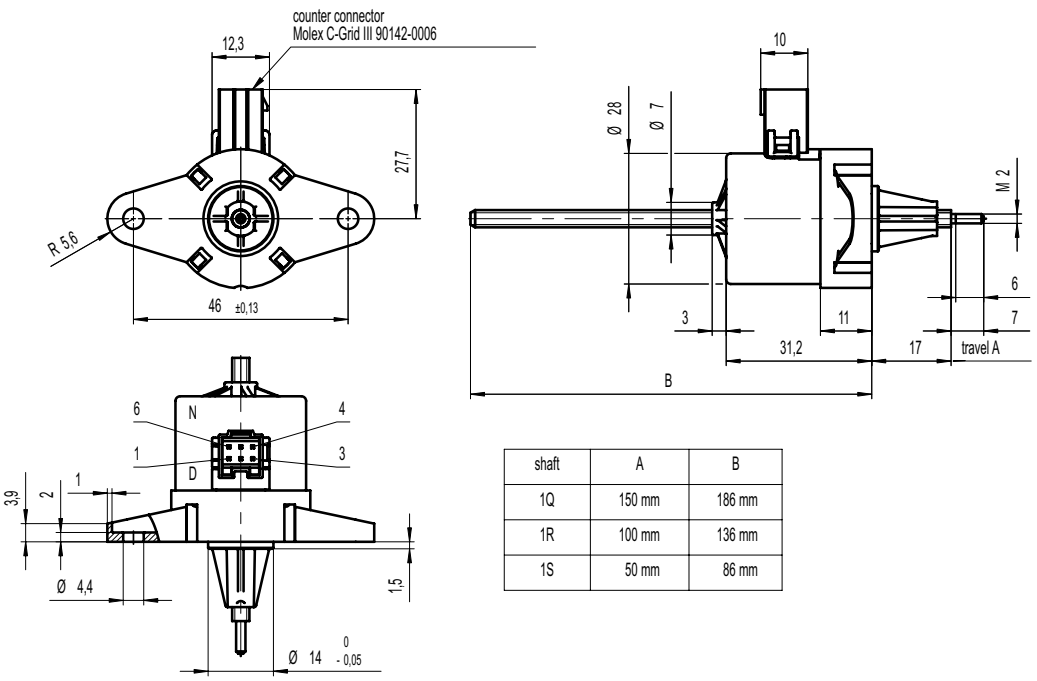
Dimensions

Version with Connector D, with 13 mm travel, shaft 1B and 1E



shaft 1B= cost effective solutions for forces up to 25N

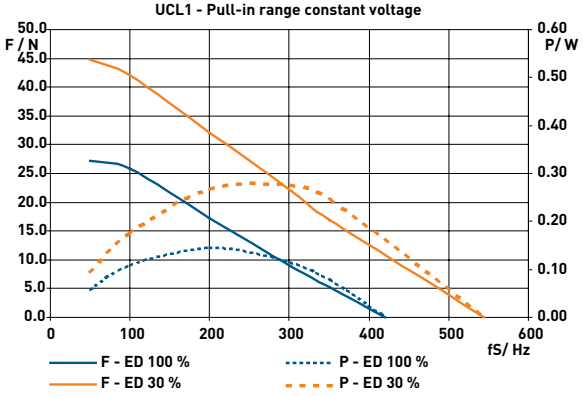
Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q



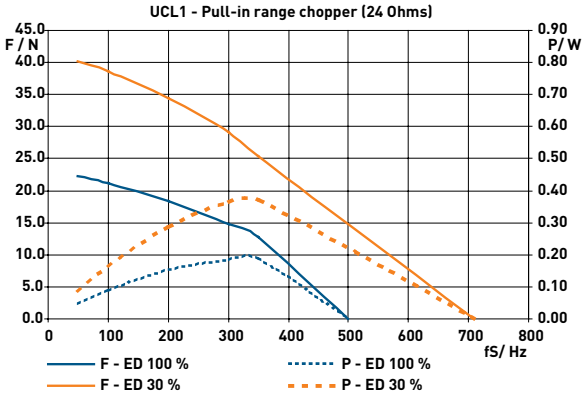
shaft	A	B
1Q	150 mm	186 mm
1R	100 mm	136 mm
1S	50 mm	86 mm

Performance Chart

UCL1 - Pull-in range constant voltage

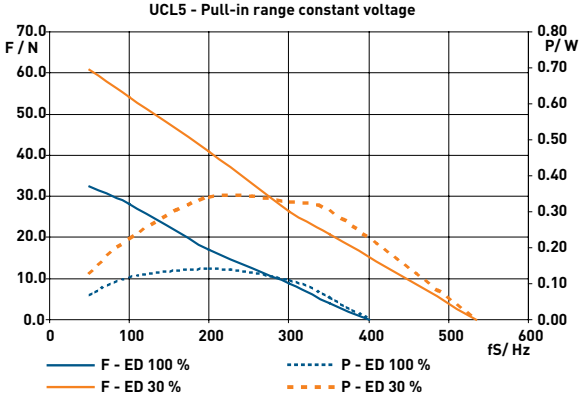


UCL1 - Pull-in range chopper (24 Ohms)

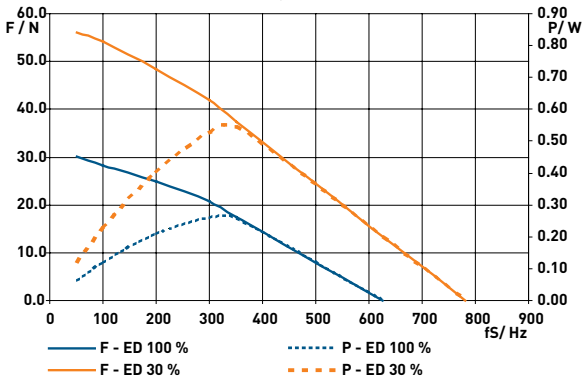


100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

UCL5 - Pull-in range constant voltage

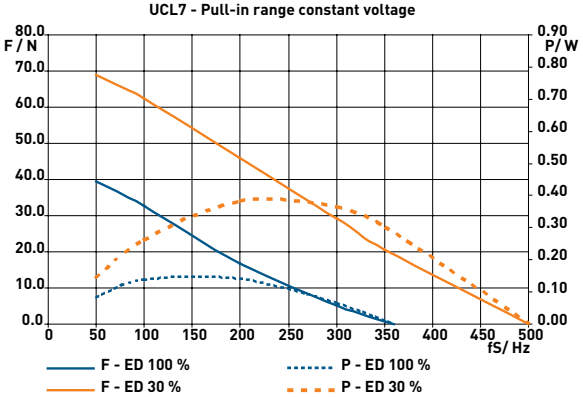


UCL5 - Pull-in range chopper (24 Ohms)

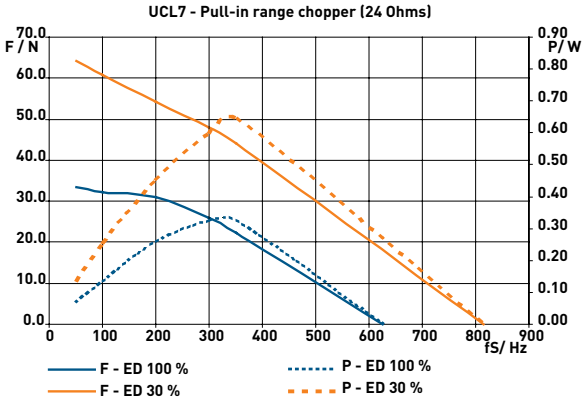


100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

UCL7 - Pull-in range constant voltage

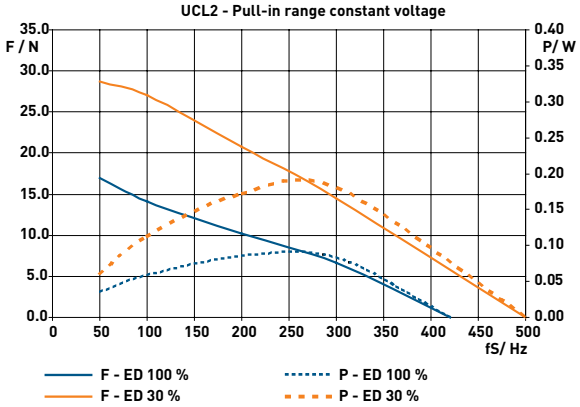


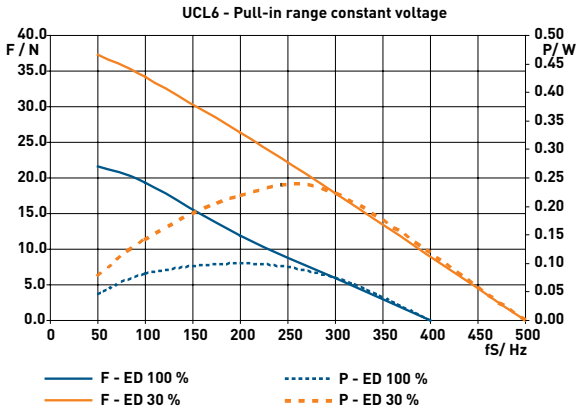
UCL7 - Pull-in range chopper (24 Ohms)

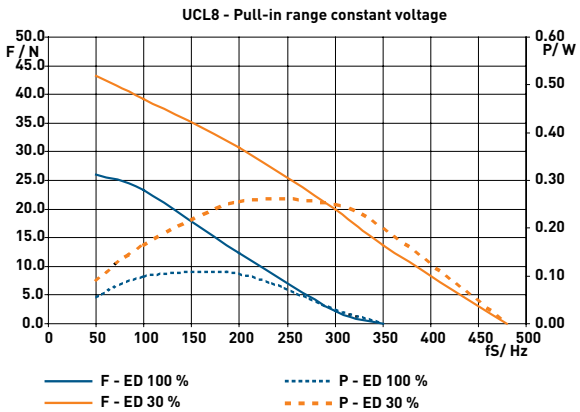


100% duty cycle: max. current per phase 180mA
30% duty cycle: max. current per phase 300mA

Performance Chart



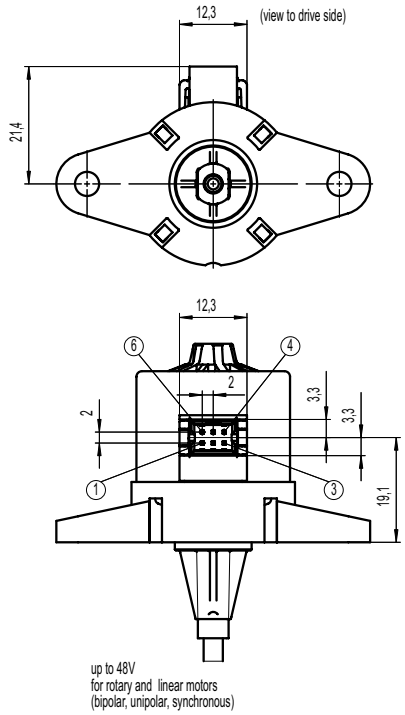




Linear

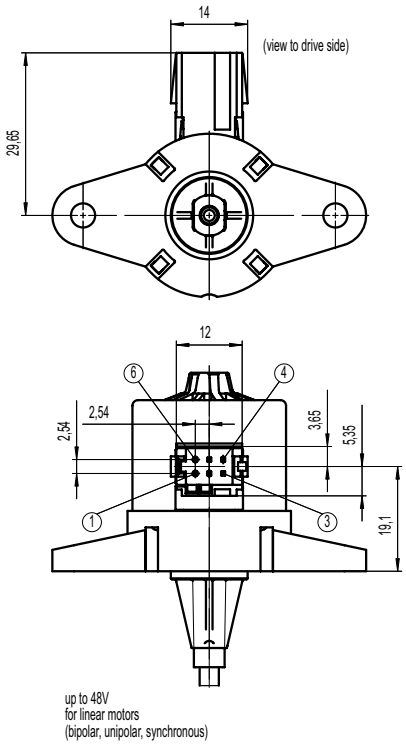
Connection Types UC motors

Connector B
for Molex Milli-Grid 51110-0660



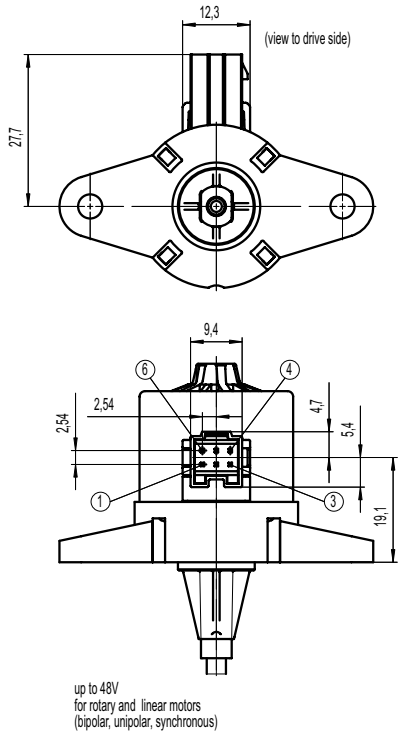
up to 48V
for rotary and linear motors
(bipolar, unipolar, synchronous)

Connector C
for Tyco Modu IV 0-1740209-6



up to 48V
for linear motors
(bipolar, unipolar, synchronous)

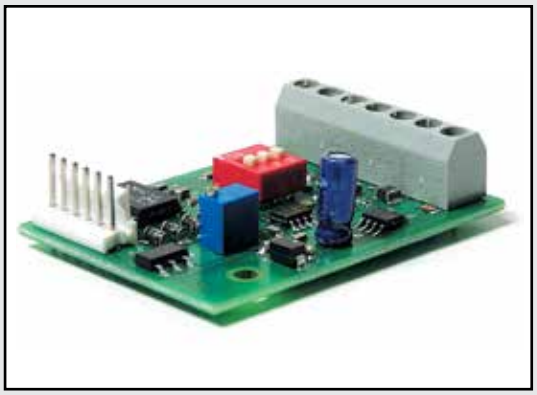
Connector D
for Molex C-Grid III 90142-0006



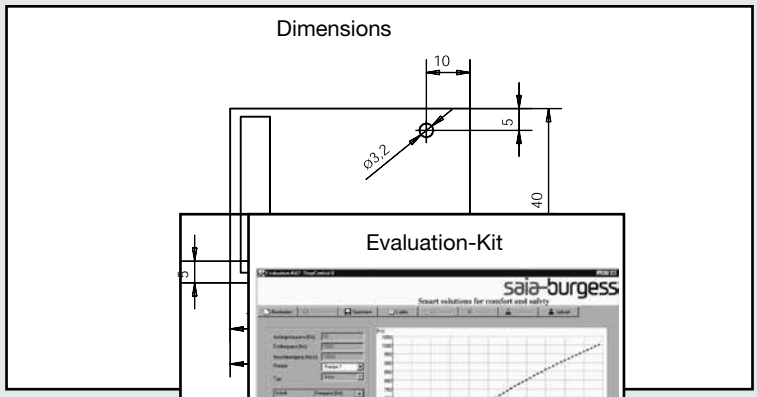
up to 48V
for rotary and linear motors
(bipolar, unipolar, synchronous)

Linear

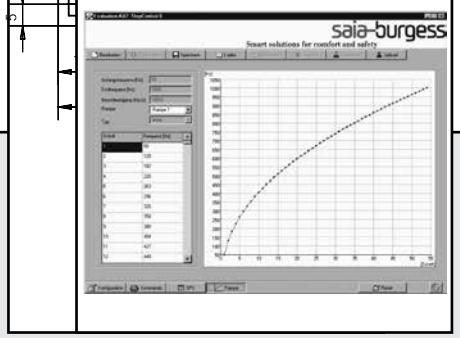
Electronics for Stepper Motors



Dimensions



Evaluation-Kit



JOHNSON ELECTRIC

innovating motion

SAMOTRONIC101

Driver	for unipolar motors
Dimensions (mm)	55 x 40
Supply voltage (VDC)	10-24
Motor current	constant voltage drive
Step mode	full/half step
Clock source	internal or external
Control inputs to	▪ inhibit internal clock ▪ inhibit motor current ▪ change direction of rotations
Configuration	via DIP-switch, potentiometer

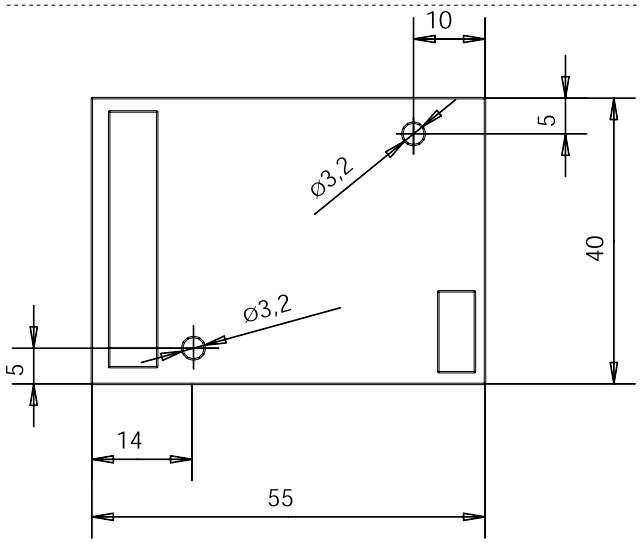
Preferred Range

Ordering Reference	
4 636 6608 0	If motors are also to be ordered please state: “with MTA-100 receptacles for use with SAMOTRONIC101“.
4 636 6608 3	with screw terminal for motor connection, max 0.5 mm²

Technical Data

Supply voltage	10-24 VDC
Phase current	≤ 350 mA
Control signal level	LS-TTL (0-5V) for all control inputs
Internal clock	50-360 Hz
External clock	up to 2 kHz
Dimensions	55 x 40 mm
Operating temperature	-5 to +50 °C
Storage temperature	-20 to +70 °C

Dimensions



For latest technical and safety compliance information regarding these products, please download the relevant data sheet from our web site: www.saia-burgess.com/drivers

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SAMOTRONIC102

Driver	for bipolar motors
Dimensions (mm)	84 x 54
Supply voltage (VDC)	▪ standard version 10 DC–24 ▪ enhanced version 10 DC–42
Motor current	▪ constant current drive (chopper controlled) ▪ adjustable via potentiometer
Step mode	full/half step
Clock source	internal or external
Control inputs to	▪ inhibit internal clock ▪ inhibit motor current ▪ change direction of rotations
Configuration	via DIP-switch, potentiometer
Test pins	▪ motor current ▪ step frequency

Preferred Range

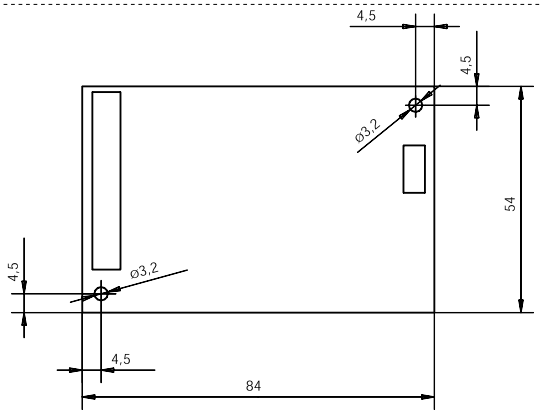
Ordering Reference	
4 636 6733 0	10-24VDC supply voltage (standard version)
4 636 6733 3	10-42VDC supply voltage (enhanced version)

If motors are also to be ordered please state: “with MTA-100 receptacles for use with SAMOTRONIC102”.

Technical Data

Supply voltage	10-24 (42)VDC
Phase current	71-500 mA, on request max. 735mA/ph
Chopper frequency	typ. 20kHz
Control signal level	LS-TTL (0-5V) for all control inputs
Internal clock	50-1325 Hz
External clock	up to 2 kHz
Dimensions	84 x 54 mm
Operating temperature	-20 to +60 °C
Storage temperature	-20 to +80 °C

Dimensions



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Evaluation-Kit 2

Evaluation-Kit 2

Driver	for unipolar and bipolar motors
Dimensions (mm)	metal case 164 x 130 x 45
Motor voltage (VDC) (VAC)	 3–48 Unipolar motors 8-48 Bipolar motors (< 8 on request)
Motor current	constant voltage drive and constant current drive (chopper controlled)
Step mode	full/half/micro step
Clock source	internal, programmable
Control inputs to	▪ 3 digital inputs ▪ 4 signal outputs ▪ 1 analog input 0...10 VDC ▪ relay contact
Configuration	RS 232, USB

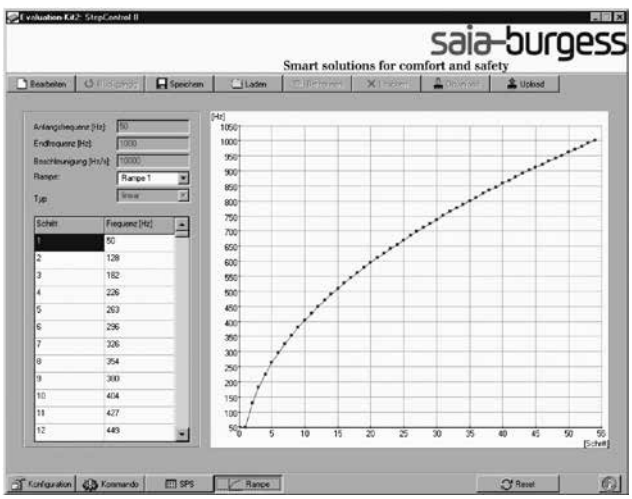
Order Reference

4 717 4898 0	
Power supply (on request)	

Technical Data

Supply voltage	10-48 VDC/24 VAC
Phase current	≤ up to 2.3 A
Step modes	11 (full, half, wave ... microstep)
Max. step frequency	10 kHz
PLC	max. 256 steps, 65536 loops
Operating temperature	0 ... +55 °C
Storage temperature	-20 to +80 °C

Test the Stepconfreeware without hardware in a special demo mode (www.saia-burgess.com/evaluationkit2).



For further information please contact your Saia-Burgess sales company or see our website www.saia-burgess.com.

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Edition: Sep. 2016

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