

Series DRWS and DRWB drivers for the control of electric actuation

New

1

MOVEMENT

Series DRWS: driver for Stepper motors, one size/version

Series DRWB: driver for Brushless motors, sizes in power classes

100, 400 and 750 W



The new Camozzi drivers in both its versions DRWS and DRWB have been designed to control the movement of the motors connected.

The servo drivers DRWB, compact and especially optimized for the brushless Camozzi motors, are completely digital and available in the power classes 100 W, 400 W and 750 W. Equipped with vector mode and the function of Autotuning and containment of vibrations, they are made in such a way to easily perform replacements and to have a two-line alphanumeric display with 4 control keys on the servo driver. A digital pulse interface allows control of the direction, position, speed and torque.

- » Completely digital drivers
- » PLC function programmable with the Camozzi QSet
- » Control of speed, position and torque (torque only for Series DRWB)
- » 64 positions programmable through the QSet
- » Self-compensation of errors
- » Can be interfaced with the Camozzi QSet configuration software

The DRWS drivers, compact and optimized in one size, have been especially studied for all Camozzi stepper motors. They are capable of controlling stepper motors with 2 phases and micro stepping feed. They are able to calculate the normal resonance frequency of the motors and optimize their driving. Moreover, they can reduce natural friction to a minimum during very slow rollings of the stepper motor, giving a continuous and very fluid (smooth effect) movement at any speed thanks to the Microstepping technique, thus achieving a 1/128 STEP resolution. Another function that has been integrated into the driver reduces vibrations to a minimum during rolling inversion or during sudden changes in speed. At initial ignition/ switching on, the DRWS drivers are able to calculate the inductance, the electrical resistance of the motor connected and the inertia of the motor, and saves these parameters inside in order to better manage the driving of the motors.

SERIES DRWS GENERAL CHARACTERISTICS
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MOVEMENT

Mod. DRWS-A05-8-D-0-A

Current	0.1 - 5 A
Working voltage	24 - 48 V DC
Amplifier type	Dual H-Bridge, 4 Quadrants
Current control	4 state PWM at 20 KHz
Protection	Overvoltage, undervoltage, overtemperature, internal motor shorts (phase-to-phase, phase-to-ground)
Idle current	Automatic idle current reduction to reduce heat after motor stops moving, software selectable current and idle delay
Microstep emulation	Performs high resolution stepping by synthesizing fine microsteps from coarse steps. Reduces jerk and extraneous system resonances.
Anti-resonance	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time.
Torque ripple smoothing	Allows for fine adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
Non-volatile storage	Configurations are saved in FLASH memory on-board the DSP
Humidity	90% non-condensing
Ambient temperature	0 - 40°C
Mass	Approx. 0.2 Kg
I/O specifications	- 8 Inputs: optically isolated, 24 V DC - Outputs: optically isolated, 24 V DC max, 10 mA max - 1 Output brake: optically isolated - Analog Input: 0-5 V DC, 12 bit resolution (4096 points)

SERIES DRWB GENERAL CHARACTERISTICS

Mod. DRWB-W01-2-D-E-A, DRWB-W04-2-D-E-A, DRWB-W07-2-D-E-A	
Power	100 W (Mod. DRWB-W01-2-D-E-A) 400 W (Mod. DRWB-W04-2-D-E-A) 750 W (Mod. DRWB-W07-2-D-E-A)
Electrical supply	200 ÷ 240 V AC (± 10%) single or three phase 50 ÷ 60 Hz (± 5%)
Number of phases	1
Maximum current	1.5 A (Mod. DRWB-W01-2-D-E-A) 4.1 A (Mod. DRWB-W04-2-D-E-A) 7.5 A (Mod. DRWB-W07-2-D-E-A)
Logic supply	200 ÷ 240 V AC (± 10%) 50 ÷ 60 Hz (± 5%) single phase
Maximum logic current	0.5 A max.
OUTPUT CURRENT	
Continuous current (effective)	0.9 A (Mod. DRWB-W01-2-D-E-A) 2.5 A (Mod. DRWB-W04-2-D-E-A) 5.1 A (Mod. DRWB-W07-2-D-E-A)
Peak current (effective)	2.7 A (Mod. DRWB-W01-2-D-E-A) 7.5 A (Mod. DRWB-W04-2-D-E-A) 15.3 A (Mod. DRWB-W07-2-D-E-A)
Maximum duration of peak current	1 second
Type of control	IGBT PWM vector control
Controller sampling rate	Current, speed and position: 15 kHz
Motor types supported	AC servo motors
Status of LED	Red: Error Green: Ready
OPERATING MODES	
Encoder interface	Operating voltage + 5 VDC ± 5 % @400 mA
Communication interface	USB 2.0
Parameterisable I/O interface	Digital Inputs [I1..I9], (single-end, optocoupler) Digital Outputs [O1..O4], (optocoupler) BRAKE Output [CN2_BRK], max. 1 A DC
Feedback	External transducer Activation threshold + HV > 370 V DC Activation threshold + HV < 360 V DC Tolerance ± 5 %
Monitoring functions	Short circuit, overvoltage (> 390 V DC ± 5 %), undervoltage (< 60 V DC); position error, encoder error, motor phase monitoring, overtemperature D2 (IGBT > 90 °C ± 1°C), motor overtemperature
Autotuning	with automatic mass inertia calculation
VSF (vibration suppression)	01 Hz ÷ 200 Hz
Other functions	Friction compensation, gear play compensation
Ambient conditions	Operating temperature 0°C ÷ 40°C (above 55 °C only with air conditioning) Storage temperature -20°C ÷ 65°C UAir humidity 20% ÷ 85% (non-condensing) Operating altitude < 1000 m above sea level Vibration 5.88 m/s (10 Hz ÷ 60 Hz) Protection class IP20

SERIES DRWS CODING EXAMPLE

DRWS	-	A05	-	8	-	D	-	0	-	A
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DRWS	SERIES
A05	MAX SIZE A: A05 = 5 A
8	SUPPLY: 8 = 80 V DC
D	COMMUNICATION: D = Digital I/O and Analog
0	FEEDBACK: 0 = no Feedback
A	VERSIONS: A = Standard

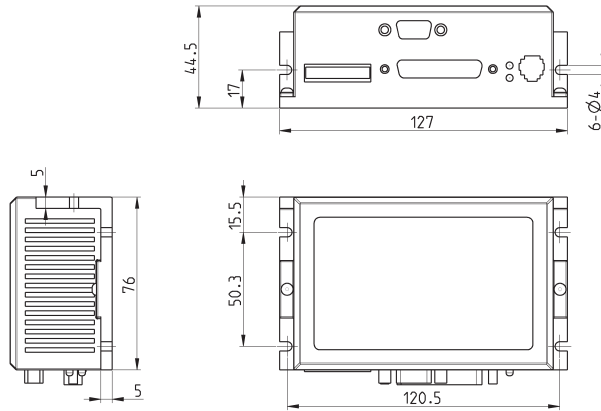
SERIES DRWB CODING EXAMPLE

DRWB	-	W01	-	2	-	D	-	E	-	A
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DRWB	SERIES
W01	SIZE W: W01 = 100 W W04 = 400 W W07 = 750 W
2	SUPPLY: 2 = 220 V AC
D	COMMUNICATION: D = Digital I/O and Analog
E	FEEDBACK: E = incremental encoder 13 bit
A	VERSIONS: A = Standard

Driver Mod. DRWS-A05-8-D-0-A

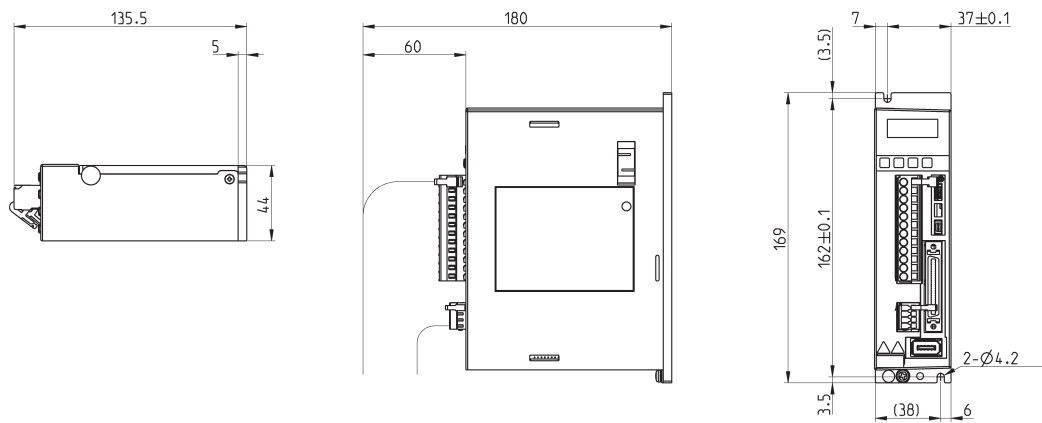
Driving for the Camozzi Stepper motors



Mod.	Max current	Supply
DRWS-A05-8-D-0-A	5 A	80 V DC

Driver Mod. DRWB-W01-2-D-E-A

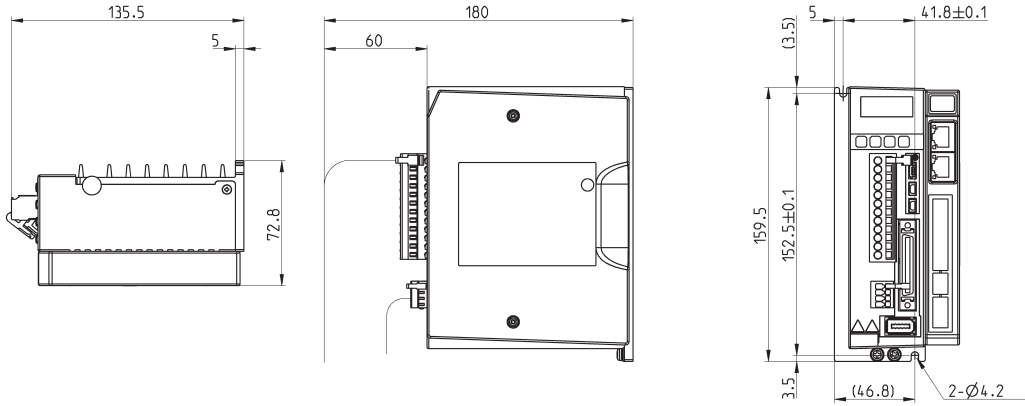
Driving for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
DRWB-W01-2-D-E-A	100 W	230 V AC	13 bit

Driver Mod. DRWB-W04-2-D-E-A

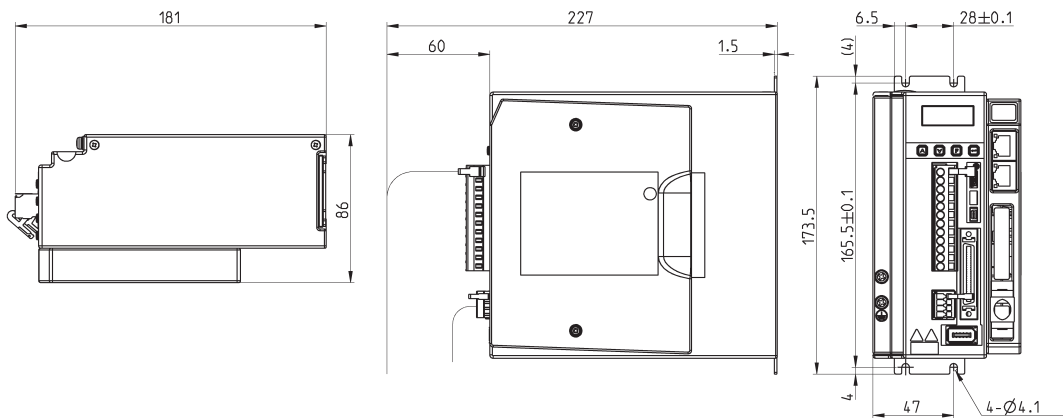
Driving for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
DRWB-W04-2-D-E-A	400 W	230 V AC	13 bit

Driver Mod. DRWB-W07-2-D-E-A

Driving for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
DRWB-W07-2-D-E-A	750 W	230 V AC	13 bit