

# 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**
**1**

MOVEMENT

Mod. DRWS-A05-8-D-0-A	
<b>Current</b>	0.1 - 5 A
<b>Working voltage</b>	24 - 48 V DC
<b>Amplifier type</b>	Dual H-Bridge, 4 Quadrants
<b>Current control</b>	4 state PWM at 20 KHz
<b>Protection</b>	Overvoltage, undervoltage, overtemperature, internal motor shorts (phase-to-phase, phase-to-ground)
<b>Idle current</b>	Automatic idle current reduction to reduce heat after motor stops moving, software selectable current and idle delay
<b>Microstep emulation</b>	Performs high resolution stepping by synthesizing the microsteps from coarse steps. Reduces jerk and extraneous system resonances.
<b>Anti-resonance</b>	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time.
<b>Torque ripple smoothing</b>	Allows for the adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
<b>Non-volatile storage</b>	Configurations are saved in FLASH memory on-board the DSP
<b>Humidity</b>	90% non-condensing
<b>Ambient temperature</b>	0 - 40°C
<b>Mass</b>	Approx. 0.2 Kg
<b>I/O specifications</b>	- 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	
<b>Power</b>	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)
<b>Electrical supply</b>	200 ÷ 240 V AC (± 10%) single or three phase 50 ÷ 60 Hz (± 5%)
<b>Number of phases</b>	1
<b>Maximum current</b>	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)
<b>Logic supply</b>	200 ÷ 240 V AC (± 10%) 50 ÷ 60 Hz (± 5%) single phase
<b>Maximum logic current</b>	0.5 A max.
<b>OUTPUT CURRENT</b>	
<b>Continuous current (effective)</b>	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)
<b>Peak current (effective)</b>	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)
<b>Maximum duration of peak current</b>	1 second
<b>Type of control</b>	IGBT PWM vector control
<b>Controller sampling rate</b>	Current, speed and position: 15 kHz
<b>Motor types supported</b>	AC servo motors
<b>Status of LED</b>	Red: Error Green: Ready
<b>OPERATING MODES</b>	
<b>Encoder interface</b>	Operating voltage + 5 VDC ± 5% @400 mA
<b>Communication interface</b>	USB 2.0
<b>Parameterisable I/O interface</b>	Digital Inputs [I1..I9], (single-end, optocoupler) Digital Outputs [O1..O4], (optocoupler) BRAKE Output [CN2_BRK], max. 1 A DC
<b>Feedback</b>	External transducer Activation threshold + HV > 370 V DC Activation threshold + HV < 360 V DC Tolerance ± 5 %
<b>Monitoring functions</b>	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
<b>Autotuning</b>	with automatic mass inertia calculation
<b>VSF (vibration suppression)</b>	01 Hz ÷ 200 Hz
<b>Other functions</b>	Friction compensation, gear play compensation
<b>Ambient conditions</b>	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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<b>DRWS</b>	SERIES
<b>A05</b>	MAX SIZE A: A05 = 5 A
<b>8</b>	SUPPLY: 8 = 80 V DC
<b>D</b>	COMMUNICATION: D = Digital I/O and Analog
<b>0</b>	FEEDBACK: 0 = no Feedback
<b>A</b>	VERSIONS: A = Standard

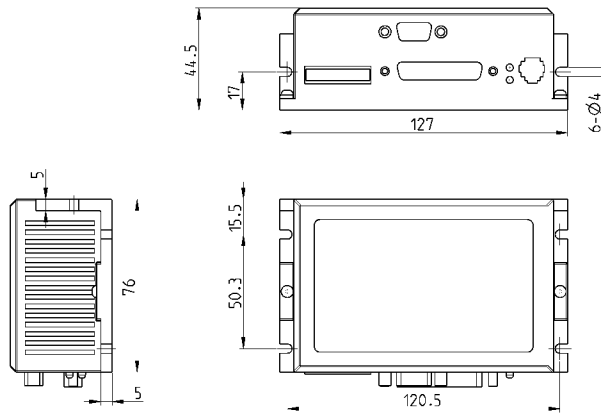
**SERIES DRWB CODING EXAMPLE**

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

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

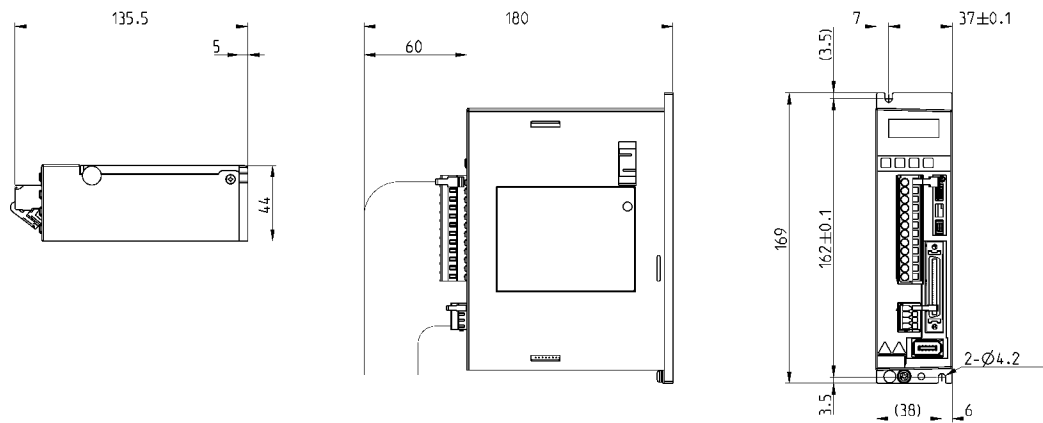
Driving for the Camozzi Stepper motors



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

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

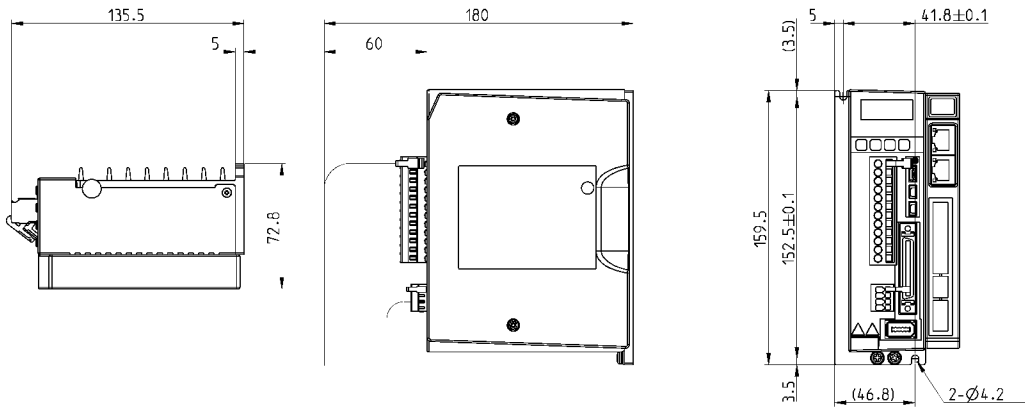
Driving for the Camozzi Brushless motors



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**

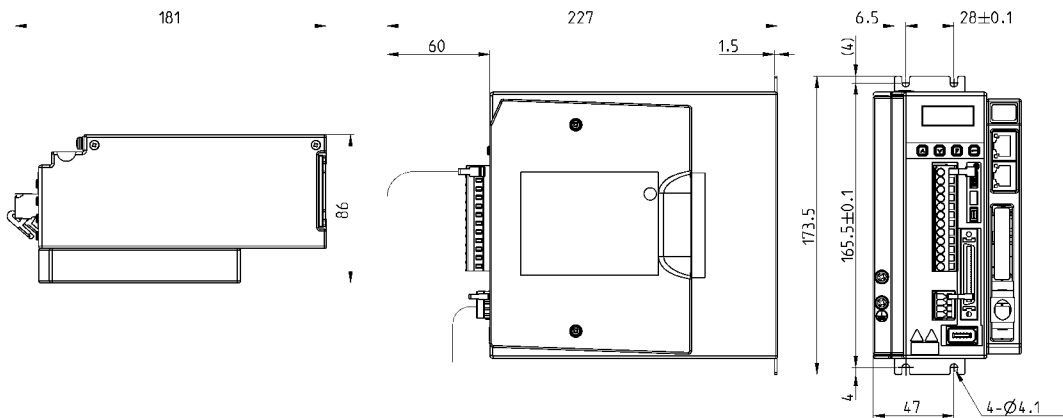
Driving for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
<b>DRWB-W04-2-D-E-A</b>	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
<b>DRWB-W07-2-D-E-A</b>	750 W	230 V AC	13 bit