Apogee & Kepler

High precision PWM servo drives with linear-grade performance

The Apogee and Kepler servo drive series deliver the industry's highest current quality and in-position stability for semiconductor, advanced packaging, and precision-motion applications using filtered 200 kHz PWM technology. These servo drives achieve linear-amplifier-grade output with ultralow noise, exceptional linearity, and jitter levels below 0.5 nm.

24-bit custom current sensors

Custom fluxgate sensors in Apogee are high-precision current sensors designed in-house to measure phase currents with extreme resolution and stability. Their key advantage: they enable true 24-bit current accuracy, which directly results in ultralow noise, perfectly **linear current** output, and **sub-nanometer** standstill jitter.

High bandwidth control

With current loop bandwidths up to **800 kHz**, the drives offer extremely fast dynamic response, ideal for high acceleration and rapid changes in force demand without lag.

Product features

- Long lifetime / reliability
- Filtered 200 kHz PWM
- 800 kHz current loop control bandwidth
- Highest performance servo-drive on the market

PMP Prodrive Motion Software Platform

	Apogee		Kepler	
	S3-120/07	D1-120/07	D1-200/04	D3-200/04
Input voltage	60-120 VDC		60-200 VDC	
phase current	6.5 ARMS		4 ARMS	
Peak phase current	16 Apk		20 Apk	
Number of motor outputs	x1	x2	x2	x2
Motor type	3-phase	Voice coil	Voice coil	3-phase
Interface	EtherCAT up to 20kHz		EtherCAT up to 20kHz	
Offset error [%of Ipk]	0.40%		0.25%	
Offset drift [%of Ipk]	0.04%		0.07%	
Gain error [%of Ipk]	0.70%		0.82%	
Gain drift	max 150ppm		max 0.15%	
Linearity error [ppm of Ipk]	max 50ppm		max 550ppm	
Current loop, small signal bandwidth (-3dB)	Typical 6-7kHz		Typical 2-4kHz	
Output current noise spectral density @100Hz	max 1µA/√Hz		max 20µA/√Hz	
Output current noise, rms 1Hz-10kHz	max 110uArms		max 600uArms	
Output current noise, rms 1Hz-20MHz	max 150uArms		max 800uArms	
Dimensions (WxDxH)	271 x 442 x 70 mm		271 x 442 x 70 mm	
Mass (typical)	7		7	

Information subject to change, contact us for more details

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