KIMA ACTUATORS

TECHNICAL PRODUCT SPECIFICATIONS[1]

	ACT065	ACT080	ACT090	ACT110
DIMENSIONS				
Diameter	65 mm	80 mm	90 mm	110 mm
Length	84 mm	95 mm	101 mm	110 mm*
HD Gear Size Equivalent	14	17	20	25
Gear Ratio	100:1	100:1	100:1	120:1*
Maximum Weight	700 g	1150 g	1600 g	2900 g*
POWER				
Operating Voltage Range	18 - 26 VDC, 24 VDC Nominal 42 - 50 VDC, 48 VDC Nominal			
Safe Operating Voltage Range	16 - 55 VDC			
Current Passthrough	10 A	15 A	20 A	25 A
PERFORMANCE				
Range of Motion	+/- 360 deg			
Motor PWM Frequency	26 kHz*			
FOC Refresh Rate	26 kHz*			
Absolute Motor Position Encoder Resolution	0.0014 motor deg*			
Motor Position Sensor Accuracy	≤0.25 motor deg*			
Absolute Joint Position Encoder Resolution	0.0014 deg*		0.00017 deg*	
Joint Position Sensor Accuracy	≤0.0153 deg*		≤0.007 deg*	
Maximum Torque	36 Nm	70 Nm	107 Nm	217 Nm*
Nominal Torque	12 Nm	32 Nm	55 Nm	110 Nm*
Maximum Velocity @ 48 VDC	60 RPM	45 RPM	30 RPM	30 RPM
Torque Sensor	Redundant (PL d)			
Torque Sensor Accuracy (+/- maximum torque)	<1.5% of maximum torque*			
Torque Sensor Accuracy (+/- 2x maximum torque)	<10% of maximum torque*			
Torque Sensor Repeatability	<1% of maximum torque*			
Torque Sensor Off-Axis Sensitivity (crosstalk)	<2% of maximum torque*			
Torque Sensor Safe Overload	300% of maximum torque*			
Internal Operating Temperature Range	5 - 65 °C			
Operating Pressure Range	70 - 106 kPa			
Operating Humidity (non-condensing)	10 - 95% @ 20 °C 20 - 50% @ 40 °C			
Transportation and Storage Temperature	-29 - 70 °C			
COMMUNICATION				
Communication frequency	1 or 4 kHz			
Communication protocol	EtherCAT® / FSoE®* CiA 402 Drive Profile Safety Drive Profile (ETG.6100)			

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Modes of operation	csp, csv, cst			

[1] All specifications are based on design estimations. Specifications with an asterisk (*) are requirements or based on extrapolations from current designs, but no design estimation is available yet. Specifications with double asterisks (**) are not implemented in this published revision.

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SAFETY				
Functional Safety	PL d			
Minimum Braking Torque	100% of maximum torque*			
Brake Engagement Time	≤50 ms*			
Safety Monitoring Functions	Safe Operating Stop** Safely-limited Position** Safely-limited Speed** Safely-limited Torque** Safe Brake Test**			
Safety Stopping Functions	Safe Torque Off Safe Stop 1** Safe Stop 2**			
INTERFACES				
Control communication bus	EtherCAT® 100Mbps			
Digital Inputs	2x safe digital inputs 1x Safe Torque Off (STO) 1x Emergency Brake Release enable** 1x Emergency Brake Release activation**			
LED control output	I2C interface to control RGBW driver** (commands through EtherCAT)			
Passthrough lines	6x differential pairs (support Gbps link) 100 impedance* 1x Safe Torque Off (STO) 1x Emergency Brake Release enable			
Axial interface	8x M3	6x M4	6x M5	8x M6
Radial interface	8x M3	8x M4	8x M5	N/A
Maximum load (all direction)	300% of maximum torque*			
STANDARDS				
Targeted field	Medical (incl. operating room)			
Applicable standards	RoHS | WEEE | REACH | Proposition 65 | EAR99 | TSCA IEC 60601-1 | IEC 80601-2-77 | IEC 62304 | ISO 13849-1 IEC 81001-5-1 | MDR EU 2017/745 | IPC-6012-EM UL 94 – PCB Flammability Rating			

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