

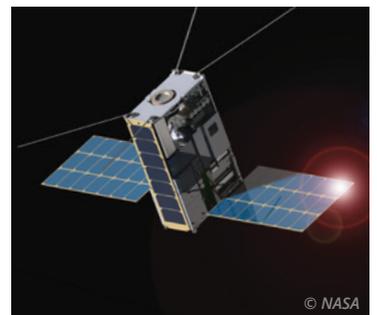
## SOLAR ARRAY DRIVE ASSEMBLY (SADA) FAMILY



The Moog Solar Array Drive Assembly (SADA) family provides a comprehensive range of single-axis, dual-axis and side-drive mechanisms designed to position spacecraft solar arrays and transfer power across a wide spectrum of mission classes. Each unit is built on Moog's proven rotary incremental actuator technology, with configurations spanning from the Small Satellite SADA through Type 5 actuator platforms to support applications from low-

power small spacecraft to high-power missions exceeding 10 kilowatts. All designs integrate precision gear transmissions, position feedback devices, and robust power-transfer assemblies to ensure reliable operation throughout mission life.

Across the family, Moog offers Harmonic Drive or spur-gear output stages, metal-on-metal slip ring assemblies, or high-power Twist Capsule solutions depending on mission requirements. Position sensing is typically provided through potentiometers, and all units are compatible with Moog's standard Electronic Control Units for a complete drive solution. The modular architecture allows interface tailoring, custom power-transfer configurations, and rapid adaptation to spacecraft-specific needs. Many configurations are already qualified, providing cost and schedule advantages while maintaining the flexibility to incorporate mission-unique features. Together, the SADA family delivers a scalable, flight-proven solution for precise solar array positioning and dependable power transfer.



# SOLAR ARRAY DRIVE ASSEMBLY (SADA) FAMILY

## SPECIFICATIONS

Parameter



Small  
Satellite  
SADA



Type 1  
SADA



Type 2  
SADA



Type 3/5  
SADA



Type 5  
SADA



High Power  
Types 5-TC  
SADA



Type 2  
Side-Drive  
SADA

Mechanical							
Mass (Lbm/Kg)	3.0/1.36	2.55/1.16	< 7.7/3.5	< 11.0/5.0	< 11.0/5.0	11.0/5.0	17.6/8.0
Output Step Size (degrees)	0.018	0.0375	0.02	0.0075	0.0075	0.0075	0.0025
Max. Slew Rate (deg/sec)	1.0	15.0	6	1.2	2.25	1.2	0.75
Max. Output Step Rate (pulses/sec)	56	400	300	160	300	160	300
Operating Output Torque, Nominal (lb-in/Nm)	50.0/5.65	74/8.4	97.4/11.0	400/45.2	400/45.2	500/56.5	900/100
Unpowered Holding Torque, Minimum (lb-in/Nm)	4.43/0.5	43/4.9	40/4.5	200/22.6	300/33.9	300/33.9	450.0/50.0
Holding Torque Powered (lb-in/Nm)	26/2.94	70/7.9	80/9.0	>500/56.5	600/67.8	600/67.8	900/100
Inertia Capability (Kg.m2)	0.2	1.4	28	340	545	545	1800
Electrical							
Motor Type	2-phase stepper	3-phase stepper	3-phase stepper	3-phase stepper	3-phase stepper	3-phase stepper	3-phase stepper
Operating Voltage, Nominal (VDC)	28	28	28	28	28	28	28
Motor Winding Resistance, Nominal	60 Ohms phase-to-phase	80 Ohms phase-to-phase	31 Ohms phase-to-phase	72 Ohms phase-to-phase	72 Ohms phase-to-phase	40 Ohms phase-to-phase	31 Ohms phase-to-phase
Power, Nominal (Watts)	3.7	15	15.4	15.1	15	12	15.4
Position Sensor/Accuracy	Potentiometer ± 0.36°	Potentiometer ± 0.36°	Potentiometer ± 0.36°	Potentiometer ± 0.36°	Potentiometer ± 0.36°	Potentiometer ± 0.36°	Potentiometer ± 0.36°
Environmental							
Operating Temperature Range	-50°C to 80°C	-30°C to +65° C	-50°C to 80°C	-30°C to +60°C	-50°C to +70°C	-24°C to +61°C	-25°C to +60°C
Power/Signal Transfer Technology	Cable Wrap	Slip-Ring	Slip-Ring	Slip-Ring	Slip-Ring	Twist Capsule	Slip-Ring
Range of Travel	+/- 184°	360° Continuous	360° Continuous	360° Continuous	360° Continuous	+/-150°	360° Continuous
Number of Power Transfers	16 transfers (8 power circuits)	30 Transfers (15 Power Circuits)	34 Transfers (17 Power Circuits)	24 Power Circuits	60 Transfers (30 Power Circuits)	75 Power Circuits (150 lines)	High: 32 Power Circuits
Pass-through Current Rating (A)	1.4	3.0	3.2	4.6	6.0	2.6	3.0
Number of Signal Transfers	5 Transfers @ 0.1 A	None	15 Transfers @ 1.0 A	10 Transfers @ 1.0 A	16 Transfers @ 1.0 A	47 Transfers @ 0.50 A	19 Transfers @ 1 A
Transfer Voltage (V)	60	100	60	120	50	100	100

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