

Power & More



SPDT Relay Controller Specifications

This table covers all NCD SPDT Relay Controllers. All ratings assume 12VDC operation at 70°F (21°C). Please note that most ratings are estimated and may be subject to periodic revision. Some ratings represent stock controller settings without performance enhancement optimizations. The estimated processing time can be impacted by background services and choice of commands. Standby power consumption assumes no communications module is installed and no relays are active on the controller. Please add the power consumption of the activated relays and communications module to obtain a better estimation of power consumption.

Building a Power Budget

The operating range of the board is between 9 & 14 VDC, any power outside this range and the board can become unreliable. Use the tables below to build a power budget for the board you have based on the module you have and the anticipated time the relay will be active.

Specifications of NCD SPDT Relay Controllers	Minimum	Nominal	Maximum	Notes
Operational Voltages	10VDC	12VDC	15VDC	
Standby Power Consumption	35mA	100mA	200mA	No Active Relays, No Com Module
Relay Power Consumption	28mA	35mA	60mA	Consumption of Each Activated Relay
Operational Temperature Range	-40°F (-40°C)	70°F (21°C)	185°F (85°C)	Theoretical Component Limits Shown
Storage Temperature Range	-67°F (-55°C)	70°F (21°C)	185°F (85°C)	Theoretical Component Limits Shown
Operational Ambient Air Humidity	0%	50%	70%	Non-Condensing Humidity Values Shown
Relay Activation Time	4ms	5ms	10ms	Needs Further Validation
Relay Deactivation Time	5mS	10mS	15mS	Needs Further Validation

AD8 Analog Input Usage Notice

Analog Inputs should not have a voltage present when powered down. Use a 220 Ohm current limiting resistor on each input to prevent damage to the controller if voltage will be present on the analog input when this controller is powered down. Do not exceed 0 to 5VDC on any analog input or the on-board CPU will be damaged. Most analog inputs include a 10K Pull Up/Down resistor to help keep the inputs quiet when not in use. This 10K resistor may slightly bias the readings of some sensors.

Communication Module Specifications

This table covers all NCD Communication Modules. While NCD communication modules operate at 3.3VDC, the ratings below highlight the effect they will have on the master controller operating at 12VDC at 70°F (21°C). Maximum ratings should be used for power budget planning purposes and may reflect short term absolute maximum peak current consumption. Some ratings are estimated and subject to periodic revision.

Specifications of NCD Communication Modules	Minimum	Nominal	Maximum	Notes
Operational Temperature Range	-40°F (-40°C)	70°F (21°C)	185°F (85°C)	Theoretical Component Limits Shown
Storage Temperature Range	-67°F (-55°C)	70°F (21°C)	185°F (85°C)	Theoretical Component Limits Shown
Operational Ambient Air Humidity	0%	50%	70%	Non-Condensing Humidity Values Shown
USB Communications Module Power Consumption	NA	NA	NA	USB Modules are Powered by the USB Port Do Not Consume Device Current
RS-232 Communications Module Power Consumption		10mA	20mA	
RS-485 Communications Module Power Consumption		20mA	35mA	
Ethernet Communications Module Power Consumption	58mA	82mA	100mA	
WiFi Bluetooth USB Communications Module Power Consumption	37mA	50mA	100mA	Up to 300 Foot Indoor Wireless Range, Unobstructed. Up to 50 Foot Range Through Walls.
900MHz Wireless Communications Module Power Consumption	13mA	30mA	50mA	Up to 1,000 Foot Indoor Wireless Range, up to 2 Mile Outdoor
868MHz Wireless Communications Module Power Consumption	17mA	30mA	50mA	
2.4GHz Wireless Communications Module Power Consumption	8mA	20mA	30mA	
KFX Wireless Key Fob Communications Module Power Consumption	11mA	15mA	25mA	Up to 200 Feet Outdoor Wireless Range using 1, 2 or 4 Button Key Fobs. Up to 700 Feet Outdoor Wireless Range using 8-Button Remotes.