

RTC-4000 Specifications

Electrical Specifications:

Power Connector (10 pin, 2mm, double row header with center key)		
1	Power	Main Drive Power: 0VDC min, 48VDC max. Do not operate motor in a way, regenerative or otherwise, that will cause the input voltage to rise above 48VDC.
2	Power	(Same as pin 1)
3	GND	Shared Power and Logic Ground
4	GND	Shared Power and Logic Ground
5	Reserved	(Reserved for special function)
6	Power	(Same as pin 1)
7	Power	(Same as pin 1)
8	GND	Shared Power and Logic Ground
9	GND	Shared Power and Logic Ground
10	GND	Shared Power and Logic Ground

I/O Connector (30 pin, 2mm, double row header with center key)		
1	I/OA	TTL digital signal through 100 Ohm protection resistor
2	I/OB	TTL digital signal through 100 Ohm protection resistor
3	I/OC	TTL digital signal through 100 Ohm protection resistor
4	I/OD	TTL digital signal through 100 Ohm protection resistor
5	I/OE/ADData	TTL digital signal through 100 Ohm protection resistor
6	I/OF/AClock	TTL digital signal through 100 Ohm protection resistor
7	Brake	TTL digital output through 100 Ohm protection resistor
8	+5V	Shared +5V with total current available of 200mA
9	GND	Shared Power and Logic Ground
10	EncA in	TTL digital signal through 100 Ohm protection resistor
11	EncB in	TTL digital signal through 100 Ohm protection resistor
12	Traj	TTL digital output through 100 Ohm protection resistor
13	Servo	TTL digital output through 100 Ohm protection resistor
14	+5V	Shared +5V with total current available of 200mA
15	GND	Shared Power and Logic Ground
16	AinA	Analog input, 0 to 5V
17	AinB	Analog input, 0 to 5V
18	AinC	Analog input, 0 to 5V
19	AinD	Analog input, 0 to 5V
20	AinE	Analog input, 0 to 5V
21	AinF	Analog input, 0 to 5V
22	AinG	Analog input, 0 to 5V
23	+5V	Shared +5V with total current available of 200mA
24	GND	Shared Power and Logic Ground
25	CH0RS-485A	0 to 5V differential signal, normally high, pulsed low
26	CH0RS-485B	0 to 5V differential signal, normally low, pulsed high

27	CH1RS-485A	0 to 5V differential signal, normally high, pulsed low
28	CH1RS-485B	0 to 5V differential signal, normally low, pulsed high
29	+5V	Shared +5V with total current available of 200mA
30	GND	Shared Power and Logic Ground

Motor Connector (20 pin, 2mm, double row header with center key)		
1	Encoder A+	0-5V signal, internally biased above 2.5V
2	Encoder A-	0-5V signal, internally biased below 2.5V
3	Encoder B+	0-5V signal, internally biased above 2.5V
4	Encoder B-	0-5V signal, internally biased below 2.5V
5	GND	Shared Power and Logic Ground
6	+5V	Shared +5V with total current available of 200mA
7	GND	Shared Power and Logic Ground
8	Phase A	3 phase BLDC motor phase A PWM to main input voltage
9	Phase B	3 phase BLDC motor phase B PWM to main input voltage
10	Phase C	3 phase BLDC motor phase C PWM to main input voltage
11	Encoder I+	0-5V signal, internally biased above 2.5V
12	Encoder I-	0-5V signal, internally biased below 2.5V
13	Hall Sensor 1	Internally pulled to +5V with 1k Ohm resister
14	Hall Sensor 2	Internally pulled to +5V with 1k Ohm resister
15	Hall Sensor 3	Internally pulled to +5V with 1k Ohm resister
16	+5V	Shared +5V with total current available of 200mA
17	GND	Shared Power and Logic Ground
18	Phase A	(Same as pin 8)
19	Phase B	(Same as pin 9)
20	Phase C	(Same as pin 10)

(Note there is no digital I/O G. It is used internally to arbitrate the RS-485)

Pin Functions:

Group	Pin	Description
Main Power Input	Supply	Main input power: 0VDC min, 48VDC max. Do not operate motor in a way, regenerative or otherwise, that will cause the input voltage to rise above 28VDC.
	Gnd	Shared Power and Logic Ground
5V Power Output	+5V out	All "5V" pins are a shared and fused 5 Volt power source for external devices. All +5V pins combined supply a total current of 200mA maximum.
	Gnd	Shared Power and Logic Ground
	PHA/-	2 phase motor (-) terminal or 3 phase motor coil phase A. 3 Amps Continuous, 6 Amps Peak.
	PHB	3 phase motor coil phase B. 3 Amps Continuous, 6 Amps Peak.

	PHC/+	2 phase motor (+) terminal or 3 phase motor coil phase C. 3 Amps Continuous, 6 Amps Peak.
Hall Sensor Inputs	HS1+	Hall sense 1 (120°). This must be appropriately connected if you are using a 3 phase brushless motor. Leave this pin unconnected if you are using a brush motor.
	HS2+	Hall sense 2 (120°). This must be appropriately connected if you are using a 3 phase brushless motor. Leave this pin unconnected if you are using a brush motor.
	HS3+	Hall sense 3 (120°). This must be appropriately connected if you are using a 3 phase brushless motor. Ground this pin if you are using a brush motor.
Main Encoder Input	ENCA+	Incremental quadrature encoder A, differential +
	ENCA-	Incremental quadrature encoder A, differential -. Leave this pin unconnected if using a single ended or open collector encoder.
	ENCB+	Incremental quadrature encoder B, differential +
	ENCB-	Incremental quadrature encoder B, differential -. Leave this pin unconnected if using a single ended or open collector encoder.
	ENCI+	Incremental quadrature encoder index, differential +
	ENCI-	Incremental quadrature encoder index, differential -. Leave this pin unconnected if using a single ended or open collector encoder.
RS-485 Communications	P0 RS-485A	Channel 0 (main) RS-485 half duplex pin A
	P0 RS-485B	Channel 0 (main) RS-485 half duplex pin B
	P1 RS-485A	Channel 1 (secondary) RS-485 half duplex pin A
	P1 RS-485B	Channel 1 (secondary) RS-485 half duplex pin B
Secondary encoder or Step & Direction inputs A and B	Encoder A	This pin has two functions: Secondary Encoder A Input or Step Input. This input can be used for Gearing or Camming or as one of two inputs for accepting standard Step and Direction signals from an external Step Motor Controller.
	Encoder B	This pin has two functions: Secondary Encoder B Input or Direction Input. This input can be used for Gearing or Camming or as one of two inputs for accepting standard Step and Direction signals from an external Step Motor Controller.
AniLink Network	Data	Data line (shared with I/O E) to AniLink peripherals – refer to peripheral for proper connections
	Clock	Clock line (shared with I/O F) to AniLink peripherals – refer to peripheral for proper connections

+/-Limits	+Lim	Positive or “Right” Limit input. This input is active low and equipped with an internal 1k ohm pull-up. If this input is activated, the motor will be commanded to turn off and coast or servo to a stop, by default, or decelerate to a stop at the current acceleration, using “F=1”.
	-Lim	Negative or “Left” Limit input. This input is active low and equipped with an internal 1k ohm pull-up. If this input is activated, the motor will be commanded to turn off and coast or servo to a stop, by default, or decelerate to a stop at the current acceleration, using “F=1”.
Digital Inputs A through F	I/OA, I/OB, I/OC, I/OD, I/OE, I/OF	These digital inputs can Source, Sink or Float. I/O E and F perform an alternate additional function of controlling an AniLink Network
Analog Inputs A through G	AinA, AinB, AinC, AinD, AinE, AinF, AinG	These analog inputs accept a voltage from 0 to 5V and provide a 10-bit reading from 0 to 1023 using the UAA, UBA, UCA, UDA, UEA, UFA and UGA variable names.

Mechanical Dimsions:

