

CIO-SERB48, CIO-SERB24/FD, CIO-SERB08

Specifications



**MEASUREMENT
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Specifications

All specifications are subject to change without notice.

Typical for 25 °C unless otherwise specified.

Specifications in *italic text* are guaranteed by design.

Output specifications

Table 1. Output specifications

Parameter	Conditions	Specification
Number of relays	CIO-SERB48	48
	CIO-SERB24/FD	24
	CIO-SERB08	8
Contact configuration		SPDT
Maximum switching current	CIO-SERB48	7.5 A
	CIO-SERB24/FD	4.3 A
	CIO-SERB08	5.0 A
Maximum switching voltage		250 V AC, 30 V DC
Maximum switching power		2500 VA, 300 W
Operate time		15 ms max
Release time		5 ms max
Ambient temperature range		-40 °C to +60 °C (-40 °F to +140 °F)
Coil voltage		5 V DC typ, 6.5 V max (60 °C)
Pick-up voltage		3.5 V max
Drop out voltage		0.5 V min
Nominal operating current		106 mA
Coil resistance		47 Ω (±10%)
Nominal operating power		530 mW

Digital input

Table 2. Digital input specifications

Parameter	Conditions	Specification
Digital type		ULN2803 Darlington (open collector)
Configuration	CIO-SERB48	3 banks of 16 outputs
	CIO-SERB24/FD	3 banks of 8 outputs
	CIO-SERB08	1 bank of 8 outputs
Input current - on condition	$V_i = 3.85 \text{ V}$	0.82 mA typ, 1.25 mA max
Input current - off condition	$V_i = 3.85 \text{ V}$	50 μA min, 100 μA typ
Output leakage current	$V_o = 50 \text{ V}$, $T_a = +70 \text{ }^\circ\text{C}$	100 μA max
	$V_o = 50 \text{ V}$, $T_a = +25 \text{ }^\circ\text{C}$	50 μA max
Input voltage - on condition	$V_{ce} = 2.0 \text{ V}$, $i_C = 200 \text{ mA}$	2.4 V typ
	$V_{ce} = 2.0 \text{ V}$, $i_C = 250 \text{ mA}$	2.7 V typ
	$V_{ce} = 2.0 \text{ V}$, $i_C = 300 \text{ mA}$	3.0 V typ
Collector-emitter saturation voltage	$i_C = 350 \text{ mA}$, $i_B = 500 \mu\text{A}$	1.1 V typ, 1.6 V max
	$i_C = 200 \text{ mA}$, $i_B = 350 \mu\text{A}$	0.95 V typ, 1.3 V max
	$i_C = 100 \text{ mA}$, $i_B = 250 \mu\text{A}$	0.85 V typ, 1.1 V max
Clamp diode reverse leakage current	$V_r = 50 \text{ V}$, $T_a = +25 \text{ }^\circ\text{C}$	50 μA max
Clamp diode forward voltage	Diode current = 350 mA	1.5 V typ, 2.0 V max
Read back logic levels (P23) (CIO-SERB24/FD only)	VOH	2.4 V min, 3.4 V typ
	VOL	0.4 V max
	IOH	-15 mA max
	IOL	24 mA max

Power consumption

Table 3. Power consumption specifications

Parameter	Conditions	Specification
CIO-SERB48	+5 V (all 48 relays - on state)	4.2 A typical, 4.6 A max
	+5 V (all 48 relays - off state)	0.01 A typical, 0.02 A max
CIO-SERB24/FD	+5 V (all 24 relays - on state)	1.9 A typical, 2.4 A max
	+5 V (all 24 relays - off state)	0.25 A typical, 0.40 A max
CIO-SERB08	+5 V (all 8 relays - on state)	0.75 A typical, 0.95 A max
	+5 V (all 8 relays - off state)	0.015 A typical, 0.04 A max

Environmental

Table 4. Environmental specifications

Parameter	Specification
Operating temperature range	0 $^\circ\text{C}$ to 70 $^\circ\text{C}$
Storage temperature range	-40 $^\circ\text{C}$ to 85 $^\circ\text{C}$
Humidity	0% to 90% non-condensing

Main connector

Table 5. Main connector specifications

Parameter	Conditions	Specification
Field		High-density screw terminal, 12-30 AWG (30 A, 300 V)
Logic	CIO-SERB48	50-pin male header connector
	CIO-SERB24/FD	<ul style="list-style-type: none"> ■ Three 50-pin male header connectors ■ 37-pin male header connector
	CIO-SERB08	Two 37-pin, male header connectors
Compatible expansion products	CIO-SERB48	<ul style="list-style-type: none"> ■ CIO-DIO24 ■ CIO-DIO96 ■ CIO-DIO192
	CIO-SERB24/FD	<ul style="list-style-type: none"> ■ CIO-DIO24 ■ CIO-DIO48 ■ CIO-DIO96 ■ CIO-DIO192
	CIO-SERB08	CIO-DIO24

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