

Servo Controller

Model No. ICE-SC1

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Please read [Limited Warranty](#) and [General Warnings and Cautions](#) prior to operating the ICE-SC1.

Description

General purpose Servo Controller with PI^2D loop filter. Secondary auxiliary output is pure integrator of primary output. Both primary output and aux output have min / max settings and adjustable offset. This product is currently in development and all specifications subject to change.

Absolute Maximum Ratings

Note: All modules designed to be operated in laboratory environment

Parameter	Rating
Environmental Temperature	>15°C and <30°C
Environmental Humidity	<60%
Environmental Dew Points	<15°C

Specifications

	ICE-SC1	Units
Side Lock Servo		
<html> </html>Bandwidth ¹⁾	1	MHz
<html> </html>Input Impedance	50	Ω
<html> </html>Input Range	±10	V
<html> </html>Dither Frequency ²⁾	4	MHz
<html> </html>Phase Shift Resolution ³⁾	5.6	deg
<html> </html>Input Voltage Noise ⁴⁾	TBD	nV/ <HTML> √Hz </HTML>
Ramp Parameters		

	ICE-SC1	Units		
Side Lock Servo				
<html> </html>Max. Ramp Amplitude	±10	V		
Loop Filter Parameters				
<html> </html>DC Offset Range	±10	V		
<html> </html>Proportional Gain (ref to DC Error)	-38 to +30	dB		
<html> </html>Proportional Gain Resolution	2	dB		
<html> </html>First Integrator	0.030 - 175	kHz		
<html> </html>Second Integrator	0.30 - 1,750	kHz		
<html> </html>Differential	0.1 - 10,000	kHz		
<html> </html>Differential Gain	18	dB		
<html> </html>Output Range	±10	V		
Output Control				
<html> </html>Adjustable Output Limits	±10	V		
Electrical Specifications				
	Min	Typical	Max	Units
5V_A Current Draw		N/A		A
5V_D Current Draw		70		mA
+15V Current Draw ⁵⁾ (Sidelock)		160	200	mA
-15V Current Draw ⁶⁾ (Sidelock)		120	150	mA

I/O (ICE-BOX)



Only when purchased with the ICE-Box.

The Front Panel for the ICE-SC1 has three SMA connectors. Top: Error In; Middle: Aux Out; Bottom: Primary Out.

Error In

SMA input for the error signal.

Aux Out

SMA output for the Auxiliary servo.

Servo Out

SMA output for the Primary servo.

1)

Calculated based on RF dither frequency of 4 MHz which limits servo bandwidth

2) 3)

Not implemented as of November, 2017

4)

Referenced to 50Ω load

5) 6)

Current draw depends on output load, assuming high impedance. Current may be initially high on power-on

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