

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 PI²D 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>
Loop Filter Parameters		

	ICE-SC1	Units		
Side Lock Servo				
<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	±7	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⁾

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

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