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^{2}D loop filter. Secondary auxiliary output is pure integerator 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		
Bandwidth[1)]	1	MHz
Input Impedance	50	Ω
Input Range	±10	V
Dither Frequency[2)]	4	MHz
Phase Shift Resolution[3)]	5.6	deg
Input Voltage Noise[4)]	TBD	nV/√Hz
Ramp Parameters		
Max. Ramp Amplitude	±10	V
Loop Filter Parameters		
DC Offset Range	±10	V
Proportional Gain (ref to DC Error)	-38 to +30	dB

		ICE-SC1		**Units**
Side Lock Servo				
Proportional Gain Resolution		2		dB
First Integrator		0.030 - 175		kHz
Second Integrator		0.30 - 1,750		kHz
Differential		0.1 - 10,000		kHz
Differential Gain		18		dB
Output Range		±10		V
Output Control				
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