

SCR Series Synthesized Converters

L, C, X, Ku, and DBS Bands



Key Features

Three-Year Warranty

Excellent Phase Noise Performance

External 5 or 10 MHz Reference Input

Ethernet Network Interface

RS-232/-422/-485 Serial Interface

STARswitch Interface

30 dB Attenuation Range

Universal Auto-ranging AC Input (90–264 Vac)

CE Approved

SCR-series high performance, single-band synthesized frequency converters have improved performance and a user-friendly design, enabling SATCOM ground station operators greater flexibility in configuring their system architecture.

The converters feature modular design and a noninverting, dual-conversion frequency plan, and are compatible with our existing UCS(B) and DCS(B) line. The SCR converter series operates seamlessly with the company's 1:1 through 1:8 STARswitch™ redundancy controllers.

Microprocessor-based control logic uses FLASH programmable memory and allows firmware upgrades in the field via the serial interface.

Available configurations

- L-band Downconverter, 950–1950 MHz RF
- L-band Upconverter, 950–1950 MHz RF
- C-band Downconverter, 3.40–4.20 GHz RF
- C-band Upconverter, 5.850–6.725 GHz RF
- X-band Downconverter, 7.25–7.75 GHz RF
- X-band Upconverter, 7.90–8.40 GHz RF
- Ku-band Downconverter, 10.70–12.75 GHz RF
- Ku-band Upconverter, 13.75–14.50 GHz RF
- DBS-band Upconverter, 17.3–18.4 GHz RF

Options

- 70 or 140 MHz IF
- 50 or 75 ohm IF impedance
- 1 kHz or 125 kHz frequency step size

GENERAL DYNAMICS
SATCOM Technologies

L-Band Downconverter Specifications, SCR100CD-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency	RF band	950		1950	MHz
Output Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-65 -77 -82 -90 -102 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	44	45	46	dB
Gain Flatness	Across output (IF) band Across input (RF) band			±0.5 ±1.0	dB dB
Gain Slope	Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	P _{out} = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	°/dB
Group Delay	Linear component Parabolic component, Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
Spurious	Ripple component Signal related, P _{out} ≤ 0 dBm, IF Non-signal related AC Line, Fundamental AC Line, Sum of all harmonics			1.0 -60 -70 -50 -53 -80 12	ns p-p dBc dBm dBc dBc dBc dB
Image Rejection					
Noise Figure at +23 °C	At maximum gain				dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.25 1.15	:1 :1
IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10 10		MHz MHz
Reference Output for ODU	Frequency Power at RF port when enabled Power at RF port when disabled	-3	-1 -75	+1 -53	dBm dBm
Connectors	RF In IF Out IF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type N (F) Type BNC (F) Type BNC (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D 15 (7)		in mm lb (kg)
Weight	Approximate				
Temperature Range	Operating; Ambient Storage	0 -30		+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

[†] When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

L-Band Upconverter Specifications, SCR1000CU-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Frequency	RF band	950		1950	MHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-65 -77 -82 -90 -102 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	31	32	33	dB
Gain Flatness	Across input (IF) band Across output (RF) band			±0.5 ±1.0	dB dB
Gain Slope	Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	P _{out} = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	°/dB
Group Delay	Linear component			0.03	ns/MHz
	Parabolic component, Option 1, Per 40 MHz Option 2, Per 80 MHz			0.01 0.004	ns/MHz ² ns/MHz ²
	Ripple component			1.0	ns p-p
Spurious	Signal related, P _{out} ≤ 0 dBm Non-signal related, Gain ≤ 30 dB AC Line, Fundamental AC Line, Sum of all harmonics			-60 -70 -50 -53 -75	dBc dBm dBc dBc dBc
Image Rejection				22	dB
Noise Figure at +23 °C	At maximum gain setting				dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.15 1.25	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Reference Output for ODU	Frequency Power at RF port when enabled Power at RF port when disabled	-3	10 -1 -75	+1 -53	MHz dBm dBm
Connectors	IF In IF Sample RF Out RF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type BNC (F) Type BNC (F) Type N (F) Type SMA (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage	0 -30		+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

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C-Band Downconverter Specifications, SCR4000BD-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency		3.4		4.2	GHz
Output Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	43	45	47	dB
Gain Flatness (IF Band)	Option 1, Per 40 MHz Option 2, Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+15	+16		dBm
IMD ₃	Pout = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz Ripple component			0.03 0.01 0.004 1.0	ns/MHz ns/MHz ² ns/MHz ² ns
Spurious	Signal related, Pout ≤ 0 dBm, IF Non-signal related			-60 -75 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.25 1.15	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	RF In RF Sample IF Out IF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type N (F) Type SMA (F) Type BNC (F) Type BNC (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

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C-Band Upconverter Specifications, SCR6000BU-xxx

Parameter	Notes	Min.	Nom./Typ.†	Max.	Units
Input Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Frequency		5.850		6.725	GHz
Output Spectrum		Dual Conversion, Non-Inverted			
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	30	33	35	dB
Gain Flatness (IF Band)	Option 1; Per 40 MHz Option 2; Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	Pout = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	°/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
	Ripple component			1.0	ns
Spurious	Signal related, Pout ≤ 0 dBm Non-signal related			-60 -70 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.15 1.25	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	IF In IF Sample RF Out RF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type BNC (F) Type BNC (F) Type N (F) Type SMA (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

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X-Band Downconverter Specifications, SCR7000AD-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency		7.25		7.75	GHz
Output Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	43	45	47	dB
Gain Flatness (IF Band)	Option 1, Per 40 MHz Option 2, Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+15	+16		dBm
IMD ₃	P _{out} = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz Ripple component			0.03 0.01 0.004 1.0	ns/MHz ns/MHz ² ns/MHz ² ns
Spurious	Signal related, P _{out} ≤ 0 dBm, IF Non-signal related			-60 -75 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.25 1.15	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	RF In RF Sample IF Out IF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type SMA (F) Type SMA (F) Type BNC (F) Type BNC (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

[†] When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

X-Band Upconverter Specifications, SCR8000AU-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Frequency		7.90		8.40	GHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	30	33	35	dB
Gain Flatness (IF Band)	Option 1; Per 40 MHz Option 2; Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	P _{out} = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
	Ripple component			1.0	ns
Spurious	Signal related, P _{out} ≤ 0 dBm Non-signal related			-60 -70 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.15 1.25	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	IF In IF Sample RF Out RF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type BNC (F) Type BNC (F) Type SMA (F) Type SMA (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

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Ku-Band Downconverter Specifications, SCR12000RD-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency		10.70		12.75	GHz
Output Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	43	45	47	dB
Gain Flatness (IF Band)	Option 1; Per 40 MHz Option 2; Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+15	+16		dBm
IMD ₃	Pout = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
Ripple component				1.0	ns
Spurious	Signal related, Pout ≤ 0 dBm, IF Non-signal related			-60 -75 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.25 1.15	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	RF In RF Sample IF Out IF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC		Type SMA (F) Type SMA (F) Type BNC (F) Type BNC (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

[†] When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

Ku-Band Upconverter Specifications, SCR14000BU-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Frequency		13.75		14.50	GHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -78 -88 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	30	33	35	dB
Gain Flatness (IF Band)	Option 1; Per 40 MHz Option 2; Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	Pout = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
	Ripple component			1.0	ns
Spurious	Signal related, Pout ≤ 0 dBm Non-signal related			-60 -70 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.15 1.25	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	IF In IF Sample RF Out RF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC Line Input		Type BNC (F) Type BNC (F) Type SMA (F) Type SMA (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

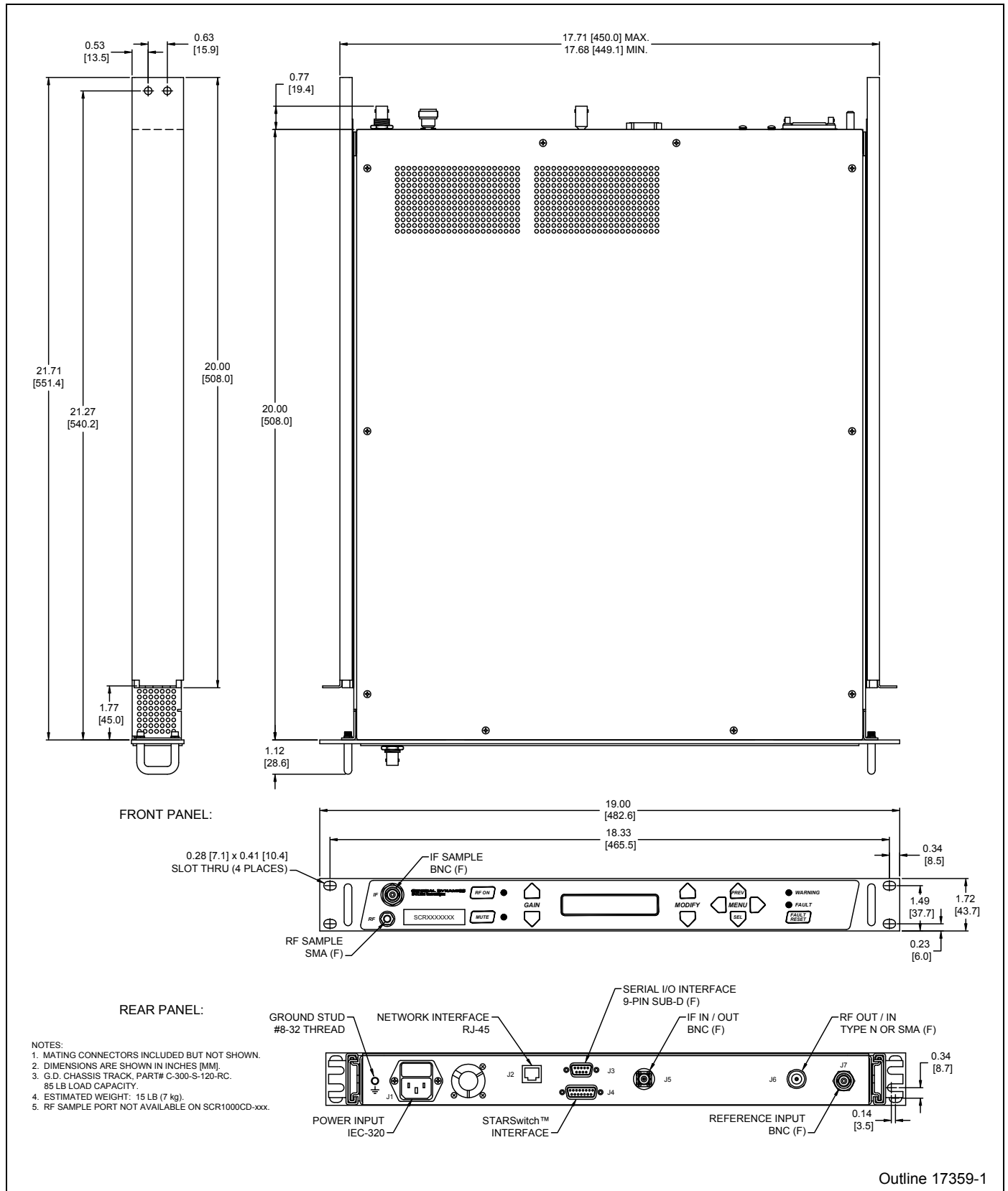
[†] When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

DBS-Band Upconverter Specifications, SCR17000AU-xxx

Parameter	Notes	Min.	Nom./Typ. [†]	Max.	Units
Input Frequency	Option 1, 70 MHz IF Option 2, 140 MHz IF	50 100		90 180	MHz MHz
Output Frequency		17.3		18.4	GHz
Output Spectrum			Dual Conversion, Non-Inverted		
Frequency Step	Option F Option C		1 125		kHz kHz
LO Phase Noise	10 Hz 100 Hz 1 kHz 10 kHz 100 kHz 1 MHz			-48 -68 -77 -87 -96 -110	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
Input Level	Damage threshold			+20	dBm
Gain	Maximum	30	33	35	dB
Gain Flatness (IF Band)	Option 1; Per 40 MHz Option 2; Per 80 MHz			±0.3 ±0.5	dB dB
Gain Flatness (RF Band)				±1.0	dB
Gain Slope	IF Band, Per 10 MHz			0.05	dB/MHz
Gain Stability	Per day, constant temperature vs. operating temperature			±0.25 ±1.0	dB dB
Gain Adjustment Range	0.1 dB steps, max.	30			dB
Power Output at P _{1 dB}	At maximum gain	+10	+12		dBm
IMD ₃	Pout = -10 dBm per tone			-60	dBc
AM/PM Conversion	-5 dBm output power			0.1	%/dB
Group Delay	Linear component Parabolic component Option 1, Per 40 MHz Option 2, Per 80 MHz			0.03 0.01 0.004	ns/MHz ns/MHz ² ns/MHz ²
Ripple component				1.0	ns
Spurious	Signal related, Pout ≤ 0 dBm Non-signal related			-60 -70 -80	dBc dBm dBc
Image Rejection				-80	dBc
Noise Figure at +23 °C	At maximum gain			13	dB
IF Impedance	Option 5 Option 7		50 75		ohms ohms
VSWR	Input Output			1.15 1.25	:1 :1
RF/IF Sample			-20		dBc
Internal Reference	Frequency Stability vs. temperature Aging/day		10	±1 × 10 ⁻⁸ ±1 × 10 ⁻⁹	MHz
External Reference	0 to +10 dBm / ±1.5 ppm		5 or 10		MHz
Connectors	IF In IF Sample RF Out RF Sample External Reference In Serial I/O (RS-232/-422/-485) STARswitch™ Ethernet Power, AC Line Input		Type BNC (F) Type BNC (F) Type SMA (F) Type SMA (F) Type BNC (F) DB9 (F) DB15 (F) RJ45 IEC-320		
Power Requirements	Voltage Frequency Power	90 47		264 63 70	Vac Hz W
Dimensions	Rack-mount, 1U chassis		19 W x 1.75 H x 20 D 483 W x 44.5 H x 508 D		in mm
Weight	Approximate		15 (7)		lb (kg)
Temperature Range	Operating; Ambient Storage			+50 +70	°C °C
Humidity	Operating, non-condensing	5%		95%	

[†] When there is only one entry on a line, the Nom./Typ. column is a nominal value; otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

Outline Drawing



Part Number/Ordering Information

SCR -

L-Band Downconverter	1000CD
L-Band Upconverter	1000CU
C-Band Downconverter.....	4000BD
C-Band Upconverter.....	6000BU
X-Band Downconverter	7000AD
X-Band Upconverter	8000AU
Ku-Band Downconverter	12000RD
Ku-Band Upconverter	14000BU
DBS-Band Upconverter.....	17000AU

Options:

IF center frequency:.....	70 MHz	1
	140 MHz	2
IF impedance:	50 ohms	5
	75 ohms	7
Frequency step:	1 kHz	F
	125 kHz	C

Examples:

C-Band Downconverter, 140 MHz IF output
(100-180 MHz), 75 ohm impedance, and
125 kHz step size..... **SCR4000BD-27C**

Ku-Band Upconverter, 70 MHz IF output
(50-90 MHz), 50 ohm impedance, and
1 kHz step size..... **SCR14000BU-15F**

Other Products

- Low Noise Amplifiers and LNA Systems
- Solid-State Power Amplifiers and SSPA Systems
- General Purpose Converters
- Satellite Communications Equipment
- Custom Subsystems

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SCR Series 1/21/14

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