

Taps and Passives

Surge-Gap™ Stretch Taps

Description

The Scientific Atlanta® Stretch Tap (SGST) is now part of the Surge-Gap™ Tap family. It retains the legacy features of our Multimedia Stretch™ Tap with the additional benefit of improved surge protection. All Surge-Gap™ taps and passives provide IEEE compliant 6 kV surge protection for the device, surpassing the industry standard of 1 kV and offering significantly improved protection against voltage transients in lightning strike areas and locations with unreliable power networks.



The Surge-Gap Stretch Tap was specifically designed to minimize costs associated with plant upgrades. When replacing older taps as part of a network upgrade, the existing coaxial feeder cables are often cut back to allow new connectors to be installed. The Surge-Gap Stretch Tap has a nine inch (stretch) housing that fills the extended gap between the coaxial cable ends without using costly or performance reducing extension connectors or splices.

The Surge-Gap Stretch Tap has also been designed to allow a variety of plug-in components which add a great degree of flexibility to system operators. The tap value is determined by the value of the directional coupler (DC) plug-in. Additionally, the in/out signal direction through the tap can be reversed simply by reversing the orientation of the DC plug-in.

The DC plug-ins are available in three configurations:

- The standard DC plug-in is a directional coupler only, which produces insertion losses and tap losses similar to those of traditional tap products.
- The DC/EQ plug-in has a directional coupler and also incorporates a broadband equalizer (EQ) on the tap leg that ties to the ports. The EQ increases tap loss at lower frequencies - primarily in the reverse path. The increased reverse path tap losses are of particular benefit at lower value tap locations.
- The DC/RW (Reverse Window) plug-in has a directional coupler and also incorporates a cable simulator circuit that allows lower, as well as more uniform tap losses in the reverse path. The reduced reverse path tap losses are of particular benefit in higher value tap locations.

By selectively making use of the standard DC, DC/EQ, and DC/RW plug-ins, the total range of reverse path tap losses in the HFC plant can be significantly narrowed. This allows the range of RF levels transmitted from closed loop customer premise equipment (CPE) to also be narrowed – thus improving the reliability of upstream transmissions.

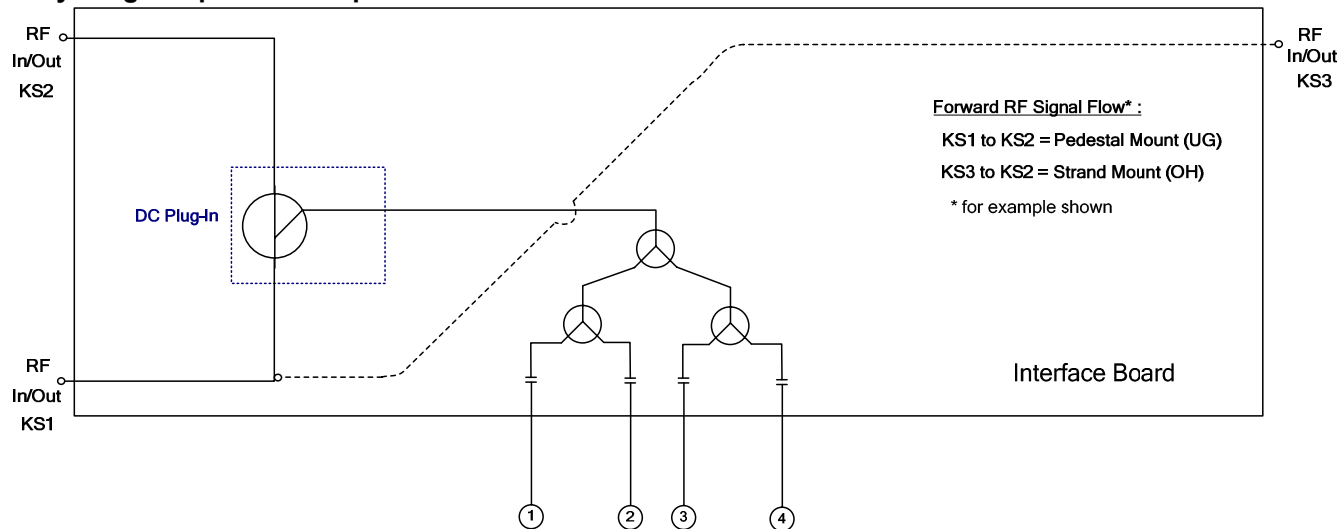
Features

- Connection-Beam AC/RF bypass switch, providing interruption-free service to downstream customers during faceplate removal
- Faceplate-confined circuitry isolates and simplifies maintenance efforts
- Per-port power activation and protection, decreasing cost and increasing customer service effectiveness
- Nine-inch housing, simplifying system upgrades
- Faceplate reversibility, eliminating costly re-splicing
- Plug-in directional coupler, enabling field modification without costly resplicing
- Available in 2-, 4-, and 8-way versions
- Compatible with aerial or pedestal mounting
- Available space for future enhancements
- Durable powder paint coating for superior environmental protection

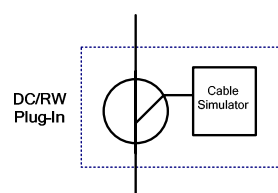
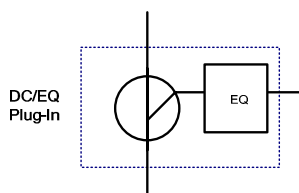
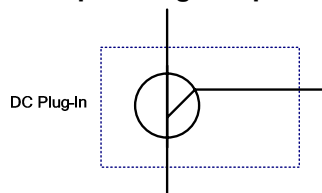
Surge-Gap Stretch Taps

Block Diagrams

4-Way Surge-Gap Stretch Tap



Directional Coupler Plug-in Options



Specifications

Dimensions

2-, 4-, 8-way: 3.5 in. H x 9 in. W x 3.5 in. D (88.9 mm H x 228.6 mm W x 88.9 mm D)

Mechanical

- AL360T housing with powder paint coating and aluminum end plugs for environmental protection
- Sealed and swaged extended F-ports for enhanced resistance to moisture ingress
- Nickel-plated brass F-ports to ensure a corrosion-resistant drop interface
- Versatile housing design permits aerial, pedestal, or MDU mounting schemes
- Operating temperature from -40°C to +60°C
- EMI shielding minimum 100 dB
- Pressure tested at 10 psi for 60 seconds under water

Electrical Specifications

- Thru Continuous current 12 amps - 60/90 V AC
- Current limiting 250 mA @ 60°C, per drop
- Surge Resistance
 - Input / Output ports - (combo wave) 6 kV
 - Tap ports (ring wave) 6 kV
- Impedance 75 ohm
- Hum Modulation @ 10 Amps (typical) 65 dB (5 - 10 MHz)
70 dB (11 - 1000 MHz)

AC/RF Bypass Switch Performance

- System Open Circuit Time 0 ms
- Contact Resistance 10 mOhms max
- Current and voltage Carrying 12 A, 60/90 V AC
- RF Frequency Range 5 to 1000 MHz
- Operating Temperature -40°C to +60°C

	5 MHz	550 MHz	750 MHz	1 GHz
Short Circuited	0.1 Max	0.4 Max	0.5 Max	0.7 Max
Insertion Loss (dB)	0.05 Mean	0.3 Mean	0.4 Mean	0.6 Mean
Short Circuited	40 Max	16 Max	16 Max	14 Max
Return Loss (dB)	53 Mean	18 Mean	17 Mean	15 Mean

Standards Compliance

Scientific-Atlanta's Surge-Gap Stretch Taps meet or exceed the following industry standards:

Safety

- EN 50083-1/EN 60065
- UL 60960-1

Mechanical

- ANSI / SCTE 01 1996 - F-port interface specification
- ANSI / SCTE 91 2004 - entry port interface specification

Emissions

- FCC - Part 76, Subpart K
- EN 50083-2

Environmental

- ASTM G 53 - weathering specification
- ASTM B 117 - salt spray specification
- ASTM D 3170 - chip resistance specification
- ASTM G 21 - fungus growth rate of zero
- EN 60529 IP 68

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

Surge-Gap Stretch Taps

Specifications, continued

2-Way Surge-Gap Stretch Tap

		Tap Value																	
	Freq.	4 dB		8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.4	3.8	1.9	2.4	1.2	1.7	0.8	1.3	0.8	1.3	0.8	1.3	0.8	1.3	0.8	1.3
	40	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0
	50	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0
	450	-	-	4.1	4.5	2.3	2.9	1.6	2.1	1.4	2.0	1.2	1.7	1.2	1.6	1.2	1.6	1.2	1.6
	550	-	-	4.0	4.3	2.4	3.0	1.7	2.2	1.5	2.0	1.3	1.7	1.3	1.6	1.3	1.8	1.3	1.8
	750	-	-	3.7	4.6	2.4	3.5	1.8	2.3	1.6	2.0	1.3	1.8	1.4	1.8	1.4	1.8	1.3	1.8
	870	-	-	5.0	4.8	2.5	3.6	2.0	2.6	1.8	2.4	1.4	1.9	1.5	1.9	1.5	1.9	1.5	1.9
	1000	-	-	4.7	5.2	2.9	3.6	2.0	2.6	1.8	2.4	1.4	1.9	1.3	1.9	1.3	1.9	1.3	1.9
Tap Loss Tolerance (±1 dB)	5	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	40	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	50	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	450	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	550	1.0		1.0		1.0		1.0		1.0		1.0		1.2		1.0		1.0	
	750	1.0		1.0		1.0		1.0		1.2		1.0		1.2		1.0		1.0	
	870	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	1000	1.0		1.3		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Tap Port Return Loss (dB, min)	5-1000	16		16		16		16		16		16		16		16		16	
In / Out Return Loss (dB, min)	5	14		14		14		14		14		14		14		14		14	
	10	15		15		15		15		15		15		15		15		15	
	50	15		15		15		15		15		15		15		15		15	
	750	15		15		15		15		15		15		15		15		15	
	870	15		15		15		15		15		15		15		15		15	
	1000	15		15		15		15		15		15		15		15		15	
Tap-to-Tap Isolation (dB, min)	5	18		18		18		18		18		18		18		18		18	
	750	18		18		18		18		18		18		18		18		18	
	1000	18		18		18		18		18		18		18		18		18	
Out-to-Tap Isolation	5	-		18		20		20		22		25		25		35		35	
	750	-		18		20		22		22		25		25		35		35	
	1000	-		18		20		22		22		25		25		35		35	

Above performance specifications are with standard DC plug-in installed. For specifications with DC/EQ or DC/RW plug-ins, refer to the data sheets for those products.

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

Specifications, continued

4-Way Surge-Gap Stretch Tap

	Freq.	Tap Value															
		8 dB		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.4	3.9	1.9	2.4	1.2	1.7	0.8	1.4	0.8	1.3	0.8	1.3	0.8	1.3
	40	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0	0.5	1.0
	50	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0	0.5	1.0
	450	-	-	4.1	4.4	2.3	2.9	1.6	2.0	1.4	1.8	1.2	1.7	1.2	1.5	1.2	1.5
	550	-	-	4.0	4.5	2.4	3.0	1.7	2.1	1.5	1.8	1.3	1.7	1.3	1.5	1.3	1.5
	750	-	-	3.7	4.7	2.4	3.5	1.8	2.3	1.6	2.0	1.3	1.8	1.4	1.8	1.4	1.8
	870	-	-	5.0	4.8	2.5	3.6	2.0	2.6	1.8	2.4	1.4	1.9	1.5	1.9	1.5	1.9
	1000	-	-	4.7	5.2	2.9	3.6	2.0	2.6	1.8	2.4	1.4	1.9	1.3	1.9	1.3	1.9
Tap Loss Tolerance (±1 dB)	5	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	40	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	50	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	450	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	550	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	750	1.0		1.3		1.0		1.0		1.0		1.0		1.0		1.0	
	870	1.0		2.2		1.5		1.0		1.1		1.0		1.0		1.0	
	1000	1.0		2.1		1.2		1.0		1.0		1.0		1.2		1.2	
Tap Port Return Loss (dB, min)	5-1000	16		16		16		16		16		16		16		16	
In / Out Return Loss (dB, min)	5	15		15		15		15		15		15		15		15	
	10	15		15		15		15		15		15		15		15	
	50	15		15		15		15		15		15		15		15	
	750	15		15		15		15		15		15		15		15	
	870	15		15		15		15		15		15		15		15	
	1000	14		14		14		14		14		14		14		14	
Tap-to-Tap Isolation (dB, min)	5	18		18		18		18		18		18		18		18	
	750	18		18		18		18		18		18		18		18	
	1000	18		18		18		18		18		18		18		18	
Out-to-Tap Isolation	5	-		18		20		22		25		25		35		35	
	750	-		18		20		22		25		25		35		35	
	1000	-		18		20		22		25		25		35		35	

Above performance specifications are with standard DC plug-in installed. For specifications with DC/EQ or DC/RW plug-ins, refer to the data sheets for those products.

Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

Surge-Gap Stretch Taps

Specifications, continued

8-Way Surge-Gap Stretch Tap

	Freq.	Tap Value													
		11 dB		14 dB		17 dB		20 dB		23 dB		26 dB		29 dB	
	MHz	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Insertion Loss (dB)	5	-	-	3.4	3.9	1.9	2.4	1.2	1.7	0.8	1.4	0.8	1.3	0.8	1.3
	40	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0
	50	-	-	3.2	3.7	1.5	1.9	0.9	1.4	0.6	1.1	0.5	1.0	0.5	1.0
	450	-	-	4.1	4.4	2.3	3.2	1.6	2.0	1.4	1.8	1.2	1.6	1.2	1.5
	550	-	-	4.0	4.5	2.4	3.2	1.7	2.1	1.5	1.8	1.3	1.7	1.3	1.5
	750	-	-	3.7	4.6	2.4	3.5	1.8	2.3	1.6	2.0	1.3	1.8	1.4	1.8
	870	-	-	5.0	4.8	2.5	3.6	2.0	2.4	1.8	2.2	1.4	1.9	1.5	1.9
	1000	-	-	4.7	5.2	2.9	3.6	2.0	2.6	1.8	2.4	1.4	1.9	1.3	1.9
Tap Loss Tolerance	5	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	40	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	50	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	450	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	550	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	750	1.0		1.0		1.0		1.0		1.0		1.0		1.0	
	870	1.4		1.5		1.1		1.4		1.5		2.0		1.7	
	1000	1.7		1.8		1.3		1.5		1.5		2.1		2.1	
Tap Port Return Loss (dB, min)	5-1000	16		16		16		16		16		16		16	
In / Out Return Loss (dB, min)	5	14		14		14		14		14		14		14	
	10	15		15		15		15		15		15		15	
	50	15		15		15		15		15		15		15	
	750	15		15		15		15		15		15		15	
	870	15		15		15		15		15		15		15	
	1000	14		14		14		14		14		14		14	
Tap-to-Tap Isolation (dB, min)	5	18		18		18		18		18		18		18	
	750	18		18		18		18		18		18		18	
	1000	18		18		18		18		18		18		18	
Out-to-Tap Isolation	5	-		20		22		25		25		35		35	
	750	-		20		22		25		25		35		35	
	1000	-		20		22		25		25		35		35	

Above performance specifications are with standard DC plug-in installed. For specifications with DC/EQ or DC/RW plug-ins, refer to the data sheets for those products.

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Surge-Gap Stretch Taps

Ordering Information

Faceplate Assemblies	Part Number
SGSTF-2, Surge-Gap Stretch Tap 2-Way Faceplate Assembly	4013330
SGSTF-4, Surge-Gap Stretch Tap 4-Way Faceplate Assembly	4013331
SGSTF-8, Surge-Gap Stretch Tap 8-Way Faceplate Assembly	4013332
Tap Module Assemblies	
SGSTM-2, Surge-Gap Stretch Tap 2-Way Module Assembly	4013333
SGSTM-4, Surge-Gap Stretch Tap 4-Way Module Assembly	4013334
SGSTM-8, Surge-Gap Stretch Tap 8-Way Module Assembly	4013335
Directional Coupler Modules	Part Number
SAT STM-0, Multimedia Stretch Tap Module 0 dB	543487
SAT STM-4, Multimedia Stretch Tap Module 4 dB	562108
SAT STM-7, Multimedia Stretch Tap Module 7 dB	562109
SAT STM-10, Multimedia Stretch Tap Module 10 dB	562110
SAT STM-13, Multimedia Stretch Tap Module 13 dB	562111
SAT STM-16, Multimedia Stretch Tap Module 16 dB	562112
SAT STM-19, Multimedia Stretch Tap Module 19 dB	562113
SAT STM-22, Multimedia Stretch Tap Module 22 dB	562114
SAT STM-25, Multimedia Stretch Tap Module 25 dB	562115
Other Accessories	
Positive Temperature Coefficient (PTC) Modules, qty. 100, <i>(required for port powering)</i>	592049
2-Way Complete Tap Assembly	Part Number
SGST2-4, Surge-Gap Stretch Tap 2-Way 4 dB	4013306
SGST2-8, Surge-Gap Stretch Tap 2-Way 8 dB	4013307
SGST2-11, Surge-Gap Stretch Tap 2-Way 11 dB	4013308
SGST2-14, Surge-Gap Stretch Tap 2-Way 14 dB	4013309
SGST2-17, Surge-Gap Stretch Tap 2-Way 17 dB	4013310
SGST2-20, Surge-Gap Stretch Tap 2-Way 20 dB	4013311
SGST2-23, Surge-Gap Stretch Tap 2-Way 23 dB	4013312
SGST2-26, Surge-Gap Stretch Tap 2-Way 26 dB	4013313
SGST2-29, Surge-Gap Stretch Tap 2-Way 29 dB	4013314
4-Way Complete Tap Assembly	
SGST4-8, Surge-Gap Stretch Tap 4-Way 8 dB	4013315
SGST4-11, Surge-Gap Stretch Tap 4-Way 11 dB	4013316
SGST4-14, Surge-Gap Stretch Tap 4-Way 14 dB	4013317
SGST4-17, Surge-Gap Stretch Tap 4-Way 17 dB	4013318
SGST4-20, Surge-Gap Stretch Tap 4-Way 20 dB	4013319
SGST4-23, Surge-Gap Stretch Tap 4-Way 23 dB	4013320
SGST4-26, Surge-Gap Stretch Tap 4-Way 26 dB	4013321
SGST4-29, Surge-Gap Stretch Tap 4-Way 29 dB	4013322
8-Way Complete Tap Assembly	
SGST8-11, Surge-Gap Stretch Tap 8-Way 11 dB	4013323
SGST8-14, Surge-Gap Stretch Tap 8-Way 14 dB	4013324
SGST8-17, Surge-Gap Stretch Tap 8-Way 17 dB	4013325
SGST8-20, Surge-Gap Stretch Tap 8-Way 20 dB	4013326
SGST8-23, Surge-Gap Stretch Tap 8-Way 23 dB	4013327
SGST8-26, Surge-Gap Stretch Tap 8-Way 26 dB	4013328
SGST8-29, Surge-Gap Stretch Tap 8-Way 29 dB	4013329