

# GigaXtend

## SGP 1.2GHz Passives with AC Continuity Couplers, Splitters and Power Inserters



SGP 1.2GHz Passives  
with Continuity  
(front view)

The GigaXtend™ SGP 1.2GHz Passives product line is the latest evolution of the HFC network providing full support of the DOCSIS 3.1 standard. DOCSIS 3.1 support will allow MSOs to fully and efficiently utilize their broadband networks to provide the services that their subscribers demand. Support for DOCSIS 3.1 means that the frequency capabilities of the devices is increased to the full 1.218 GHz spectrum as well as full compatibility with the new OFDM signaling requirements. These new capabilities will allow MSOs to increase revenue generation by allowing increased capability across their networks to drive new and improved services to their customer base.

Today's MSOs are challenged to deliver new and improved services to subscribers, as cost-effectively as possible. The GigaXtend™ SGP 1.2GHz Passives product line is the latest evolution of the HFC network providing full support of the DOCSIS 3.1 standard and OFDM sub carrier requirements. This allows MSOs to increase frequency of devices to the 1.218 GHz spectrum across the existing network with no signal degradation. Added capacity plus reliable performance means better service for customers.

A key requirement for service quality is the reliability of the network. The GigaXtend™ SGP 1.2GHz Passives family of products is designed for optimal reliability in broadband networks. The 6 kV surge specification, industry-leading hum modulation, and the power soak ratings of the directional couplers, splitters, and power inserters, coupled with the outstanding insertion loss specifications, help ensure the reliable performance required in the most demanding applications. The main circuit boards of GigaXtend SGP 1.2GHz Passives family of products are installed in the housing bases, which will allow the devices to pass through RF signal and AC power when covers are removed. The GTSG-PSVA-DC-16C module accepts a plug-in equalizer which can provide different output signal slope.

## Features

- 6 kV surge protection
- 15A current carrying capability of splitters and directional couplers and 20A input rating of power inserters allow network powering of cable telephony services
- Industry-leading insertion loss specifications reduce amplifier requirements
- Unique, patented AC bypass coil provides superior hum modulation performance, which is important in advanced, high current networks
- Superior return loss specifications promote more reliable transmission of digital signals
- Versatile housing design permits aerial or pedestal mounting
- Power passing/blocking jumpers for increased architectural flexibility
- Interchangeability of faceplates for all directional couplers and splitters simplifies architectural changes and reduces costs
- Durable powered-paint coating for superior environmental protection
- Compliant to 25A and 2-hour, 149°F (65°C) power soak rated

# RF Specifications

ATX PART NUMBER		GTSG-PSVA-08		GTSG-PSVA-12		GTSG-PSVA-16		GTSG-PSVA-16C		
NOMINAL TAP VALUE, dB		8		12		16		2-Way		
SPECIFICATION		MHz	TYP	MAX	TYP	MAX	TYP	MAX	TYP	MAX
Insertion Loss dB	5	1.7	1.9	0.9	1.1	0.9	1.1	0.9	1.1	
	10	1.6	1.8	0.8	1.1	0.8	1.0	0.8	1.0	
	40	1.6	1.7	0.8	1.1	0.8	1.0	0.8	1.0	
	85	1.6	1.7	0.9	1.1	0.8	1.0	0.8	1.0	
	100	1.6	1.7	0.9	1.1	0.8	1.0	0.8	1.0	
	200	1.6	1.8	1.0	1.1	0.9	1.1	0.9	1.1	
	550	1.6	2.0	0.9	1.3	0.9	1.2	0.9	1.2	
	750	1.8	2.2	1.1	1.5	1.0	1.4	1.0	1.4	
	870	1.9	2.4	1.2	1.7	1.0	1.5	1.0	1.5	
	1000	2.2	2.5	1.5	1.9	1.3	1.6	1.3	1.6	
	1218	2.5	2.7	2.1	2.2	1.6	1.8	1.6	1.8	
	1250	2.5	2.8	2.2	2.3	1.7	1.9	1.7	1.9	
Tap Loss (dB) Max Tolerance ±1 (dB)	5	8.5		12.3		15.6		16.0		
	10	8.5		12.3		15.6		16.0		
	40	8.5		12.3		15.6		16.0		
	85	8.5		12.3		15.6		16.0		
	100	8.5		12.3		15.6		16.0		
	200	8.5		12.3		15.6		16.0		
	550	8.5		12.3		15.6		16.0		
	750	8.5		12.3		15.6		16.0		
	870	8.5		12.3		15.6		16.0		
	1000	8.5		12.3		15.6		16.0		
	1218	8.5		12.3		15.6		16.0		
	1250	8.5		12.3		15.6		16.0		
Flatness (±dB)	5-1000	0.5		0.5		0.5		0.5		
	5-1250	0.6		0.6		0.6		0.6		
Return Loss (dB) (Min)	5-40	16		16		20		16		
	40-400	20		20		20		18		
	400-750	20		20		22		18		
	750-870	20		18		20		18		
	870-1000	20		18		18		18		
	1000-1250	18		18		18		18		
Isolation (dB) (Min)	5-10	16		20		20		20		
	10-85	18		23		24		24		
	85-204	20		23		24		24		
	204-750	18		23		24		24		
	750-870	20		22		22		22		
	870-1250	16		22		22		22		

**NOTE:**

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 and ANSI standards (where applicable), using standard frequency assignments.

## RF Specifications Continued

ATX PART NUMBER		GTSG-PSVA-S2		GTSG-PSVA-S3		GTSG-PSVA-S3U				GTSG-PSVA-PI	
NOMINAL TAP VALUE, dB		2-Way		3-Way		3 Way-Unbalanced				PI	
						LOW		HIGH			
SPECIFICATION	MHz	TYP	MAX	TYP	MAX	TYP	MAX	TYP	MAX	TYP	MAX
Insertion Loss dB	5	4.1	4.4	5.9	6.1	7.3	7.5	3.7	3.9	0.6	0.9
	10	3.8	4.2	5.5	5.8	7.0	7.4	3.6	3.8	0.4	0.6
	40	3.7	4.0	5.3	5.6	6.8	7.2	3.5	3.8	0.4	0.6
	85	3.7	4.0	5.4	5.6	6.9	7.2	3.6	3.8	0.4	0.7
	100	3.8	4.0	5.4	5.6	6.9	7.2	3.6	3.8	0.5	0.7
	200	3.9	4.1	5.6	5.8	7.1	7.3	3.7	3.8	0.6	0.7
	550	3.9	4.3	5.7	6.2	7.3	7.9	3.8	4.2	0.4	0.7
	750	4.1	4.5	6.0	6.5	7.5	8.0	4.1	4.6	0.4	0.8
	870	4.3	4.7	6.2	6.6	7.6	8.1	4.4	4.7	0.5	0.9
	1000	4.5	4.9	6.4	6.9	7.8	8.3	4.6	4.9	0.6	1.0
	1218	5.0	5.1	6.9	7.2	8.3	8.6	5.1	5.2	0.9	1.2
1250	5.0	5.2	7.1	7.3	8.4	8.7	5.1	5.2	1.0	1.3	
Tap Loss (dB) Max Tolerance ±1 (dB)	5	-		-		-		-		-	
	10	-		-		-		-		-	
	40	-		-		-		-		-	
	85	-		-		-		-		-	
	100	-		-		-		-		-	
	200	-		-		-		-		-	
	550	-		-		-		-		-	
	750	-		-		-		-		-	
	870	-		-		-		-		-	
	1000	-		-		-		-		-	
	1218	-		-		-		-		-	
1250	-		-		-		-		-		
Flatness (±dB)	5-1000	0.5		0.5		0.5				0.35	
	5-1250	0.6		0.75		0.75				0.5	
Return Loss (dB) (Min)	5-40	18		18		16				18	
	40-400	20		20		18				18	
	400-750	18		20		18				18	
	750-870	20		20		18				18	
	870-1000	18		20		16				18	
	1000-1250	16		18		16				18	
Isolation (dB) (Min)	5-10	20		23		19				56	
	10-85	23		23		23				58	
	85-204	23		23		23				58	
	204-750	23		22		22				58	
	750-870	20		22		20				53	
	870-1250	20		20		20				53	

**NOTE:**

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ELECTRICAL		
POWER INSERTER		
HUM MODULATION @15A (Typical)	5-10 MHz	60 dBc
	11-869 MHz	65 dBc
	870-1250 MHz	65 dBc
POWER PASSING	20A, 60/90 VAC max input port	
	15A, 60/90 VAC max output port	
	6 kV Surge Resistant (combination wave)	
DIRECTIONAL COUPLERS		
HUM MODULATION @15A (Typical)	5-10 MHz	60 dBc
	11-1000 MHz	65 dBc
	1001-1250 MHz	60 dBc
POWER PASSING	15 A, 60/90 VAC, 60 Hz	
	6 kV Surge Resistant (combination wave)	
SPLITTERS		
HUM MODULATION @15A (Typical)	5-10 MHz	60 dBc
	2-WAY 11-1000 MHz	65 dBc
	3-WAY 11-1000MHz	3 Way-Unbalanced, 60 dBc
	1001-1250MHz	60 dBc
POWER PASSING	15 A, 60/90 VAC, 60 Hz	
	6 kV Surge Resistant (combination wave)	
MECHANICAL		
WATER AND DUST INGRESS RATING	IP68	
STANDARD TAP	2-Way/4-Way	
DIMENSIONS	3.6"H x 3.6"W x 3.0"D	
WEIGHT	2-WAY	0.30Kg, 0.66 lb
	3-WAY	0.31Kg, 0.68 lb
FULL PROFILE TAP	2-Way/4-Way/8-Way	
DIMENSIONS	4.25"Hx 5.50"W x 3.0"D in.	
WEIGHT	2-WAY	0.45 Kg, 0.99 lb
	4-WAY	0.46 Kg, 1.01 lb
	8-WAY	0.48Kg, 1.06 lb
BOLT TORQUE REQUIREMENTS		
CENTER CONDUCTOR SEIZURE	15 lb-in to 20 lb-in (1.7 Nm to 2.3 Nm)	
HOUSING CLOSURE	50 lb-in to 60 lb-in (5.6 Nm to 6.8 Nm)	
PORT PLUGS	50 lb-in to 60 lb-in (5.6 Nm to 6.8 Nm)	
CONNECTOR PULL OUT	100 lb. min.	
ENVIRONMENTAL		
OPERATING TEMPERATURE	-40 to 60 C	
	40 to 140 F	
STANDARDS COMPLIANCE		
MECHANICAL	ANSI/SCTE 01 2015 - "F" female port interface specification ANSI/SCTE 91 2015 - 5/8-24 RF & AC female port specification	
EMISSIONS	FCC - Part 76, Subpart K, EN 50083-2/A1: 1998	
ENVIRONMENTAL	ASTM G 53 - weathering specification, ASTM B 117 - salt spray specification ASTM D 31 - chip resistance specification, EN 60529: 1992 (IP test) Bellcore GR-63-CORE - vibration/transportation, ANSI/IEEE C62.41 - lightning	
ELECTRICAL SAFETY	UL/CSA 60950-1	

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## Ordering Information

Part Number	Description
<b>GigaXtend SGP 1.2GHz Passives with Continuity</b>	
<b>GTSG-PSVA-08</b>	GigaXtend SGP 1.2 GHz Directional Coupler with AC Continuity, 8dB
<b>GTSG-PSVA-12</b>	GigaXtend SGP 1.2 GHz Directional Coupler with AC Continuity, 12dB
<b>GTSG-PSVA-16</b>	GigaXtend SGP 1.2 GHz Directional Coupler with AC Continuity, 16dB
<b>GTSG-PSVA-16C</b>	GigaXtend SGP 1.2GHz Directional Coupler with AC Continuity and position for Plug-In EQ, 16dB
<b>GTSG-PSVA-S2</b>	GigaXtend SGP 1.2 GHz 2-Way Splitter with AC Continuity
<b>GTSG-PSVA-S3</b>	GigaXtend SGP 1.2 GHz 3-Way Splitter-Balanced with AC Continuity
<b>GTSG-PSVA-S3U</b>	GigaXtend SGP 1.2 GHz 3-Way Splitter-Unbalanced with AC Continuity
<b>GTSG-PSVA-PI</b>	GigaXtend SGP 1.2 GHz power Inserter with AC Continuity

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**ATX Networks**

Tel: 289.204.7800 | Toll-Free: 866.YOUR.ATX | support@atx.com