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Outdoor multitaps
XFO faceplate-only 1.8 GHz upgrade SA/Cisco-style Narrow multitaps

XFO

- **One product compatible with all original legacy Scientific Atlanta (SA/Cisco-style) housings**

- **No need to splice a new multitap housing to go to 1.8 GHz**
    - Ensures power and Radio Frequency (RF) continuity for all end users down the coaxial line; reduces downtime, and therefore customer churn while upgrading a network to 1.8 GHz
    - 60% faster to install than a full 1.8 GHz multitap, due to the reuse of the fitted housing
    - Technicians need less know-how and experience to execute the 1.8 GHz upgrade
    - No need to invest in new housings, hardline connectors and heat shrinking

- **XFO advanced mechanical and electrical matching circuits ensure great RF performance on the legacy housings, removing the large dip in performance it causes around 1.4 GHz**

- **70% cost saving for operators compared to full installation of 1.8 GHz multitap**

- **Enabling operators to start a 'business as usual' 1.8 GHz upgrade process now, as the product is backward compatible to legacy SA/Cisco-style products**

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Overview

Cable operators are looking at the market's future needs for delivering high-speed and low-latency services to their end customers over the Hybrid Fiber-Coaxial (HFC) network. Extended Spectrum DOCSIS (ESD) allows the use of the spectrum up to 1.8 GHz, enabling operators to drive downstream speeds of over 10 Gbps. Meanwhile, the upstream frequencies are supported run to 684 MHz, enabling upstream speeds of over 6 Gbps - all while using the existing fiber and cable (HFC) infrastructure.

DOCSIS 4.0 roadmaps come in many variations; but when it comes to the deployment of passive components such as multitaps, each one placed into the network should be a 1.8 GHz passive to undertake the move to DOCSIS 4.0. Furthermore, with truck roll and labor creating the largest cost of a passive deployment, the no-screw in/out connector feature on the 1.8 GHz full taps allows for faster installation and greater ease-of-use compared to 1.2 GHz taps. This solution effortlessly solves a tangible pain point, making 1.8 GHz full taps the best choice when splicing a new tap housing. However, in the case of a mass upgrade, faceplate-only deployments are most preferable, since they heavily reduce the time it takes to perform the upgrade. They also save on necessary materials and, therefore, stock management requirements. Crucially, all this can all be executed by less skilled and experienced personnel.

The XFO series is a 1.8 GHz upgrade faceplate for legacy-style multitaps such as Motorola, Regal or SA/Cisco-style and represents an exciting technological breakthrough by Technetix. The existing need to cut hardline cables and mount new housings has a highly impactful effect on the network, demanding temporary Radio Frequency (RF) and power shutdown on the coaxial line. In addition to this, there is a need for skilled workers to properly execute operations. The XFO series tackles this issue: Not only do upgrades require a faceplate-only swap, it reduces the need for highly skilled labor, and online services remain unaffected during a mass deployment.

The XFO solves challenges presented by legacy housings, with an advanced electro-mechanical design, enabling the connection of legacy in/out screw contacts with the XFO's 1.8 GHz components and Printed Circuit Board (PCB). This creates a good flat in/out response and acceptable return loss levels on official, as well as third-party, legacy housings. The XFO SA/Cisco-style range has exceptional RF performance to 1.8 GHz. It has the option to use signal conditioning plug-ins compatible with originally manufactured SA/Cisco-style housings with and without bypass switches and with third-party SA/Cisco-style compatible housings that do not feature a bypass switch.

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General specifications

Parameter	Specification
Frequency range	5-1800 MHz
Housing connectors In/Out	5/8" Female (SCTE 91)
Faceplate connector tap ports	F-type Female (SCTE 01)
KS-male pin length guide	32.0 mm (1.26")
Housing material	Diecast aluminum with tri-valent chromate base layer and polyurethane powder coat top layer (blue RAL5005)
Bolts	50 in-lbs
EMI shielding	Min 100 dB (SCTE 48-1)
	Typ 110 dB (SCTE 48-1)
Power passing	Max. 12 A
Surge protection	6 kV all ports (IEEE-C62.14, Combination Wave, Category B3 rise time 1.2 μS / fall time 50 μS)
HUM modulation	-65 dB @12 A (SCTE-16)
Salt fog	1000h (ASTM B117)
UV degradation	1000h (ASTM G154)
Operational temperature	-40°C to +60°C (-40°F to +140°F)

Block diagrams

2 and 4-way full taps
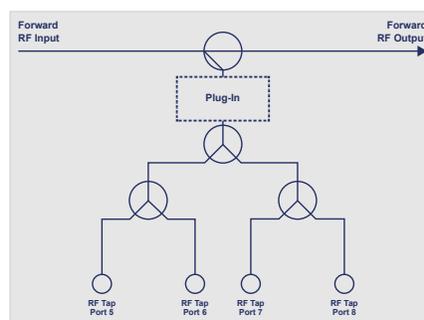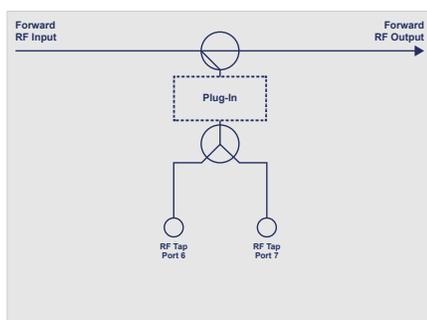
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XFO

2-way specifications

Parameter		2-4T		2-8		2-11		2-14		2-17		2-20		2-23		2-26		2-29	
		Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.
Insertion loss In-Out (dB)	5 MHz		2.4		2.4		1.6		1.9		1.0		1.0		1.0		1.0	
	12 MHz				4.0		2.2		1.8		1.6		1.2		1.2		1.2		1.2
	200 MHz				4.2		2.4		2.0		1.8		1.3		1.3		1.3		1.3
	750 MHz				4.8		3.1		2.7		2.4		1.6		1.6		1.6		1.6
	860 MHz				4.9		3.3		2.8		2.5		1.7		1.7		1.7		1.7
	1006 MHz				5.1		3.5		3.0		2.7		1.8		1.8		1.8		1.8
	1218 MHz				5.3		3.8		3.2		2.9		1.9		1.9		1.9		1.9
	1800 MHz				5.9		4.5		3.9		3.6		2.2		2.2		2.2		2.2
Tap loss In-Tap (dB)	5 MHz	3.6		13.0		10.1		11.4		15.0		23.0		25.0		27.0		30.0	
	12 MHz	4.0	5.5	9.0	10.5	11.0	12.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	200 MHz	4.0	5.5	9.0	10.5	11.0	12.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	750 MHz	4.5	6.0	9.0	10.5	11.0	12.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	860 MHz	4.5	6.0	9.0	10.5	11.0	12.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1006 MHz	4.5	6.0	9.0	10.5	11.5	13.0	14.5	16.0	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1218 MHz	4.5	6.0	9.0	10.5	11.5	13.0	14.5	16.0	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1800 MHz	4.5	6.0	10.0	11.5	12.3	13.8	14.8	16.3	17.5	19.0	20.5	22.0	23.0	24.5	26.3	27.8	29.3	30.8

Parameter		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
Return loss I/P and O/P ports (dB)	5 MHz	25.0		13.0		17.0		20.0		19.0		20.0		19.0		20.0		20.0	
	12-20 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	20-300 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	300-1006 MHz		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0
	1006-1218 MHz		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0
	1218-1800 MHz		13.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0
Return loss Tap ports (dB)	5 MHz	17.0		11.0		32.0		24.0		17.0		10.0		12.0		14.0		16.0	
	12-20 MHz		16.0		15.0		15.0		16.0		16.0		15.0		16.0		16.0		16.0
	20-470 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	470-1006 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	1006-1218 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	1218-1800 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
Isolation Out-Tap (dB)	5 MHz			18.0		14.6		15.0		25.0		22.0		23.0		26.0		29.0	
	12-20 MHz		T		20.0		22.0		25.0		26.0		29.0		32.0		35.0		38.0
	20-470 MHz		T		24.0		27.0		28.0		28.0		30.0		33.0		36.0		39.0
	470-1006 MHz		T		22.0		25.0		25.0		26.0		28.0		31.0		34.0		37.0
	1006-1218 MHz		T		18.0		22.0		22.0		24.0		26.0		28.0		31.0		34.0
	1218-1800 MHz		T		18.0		20.0		20.0		22.0		21.0		25.0		28.0		31.0
Isolation Tap-Tap (dB)	5 MHz	25.0		10.0		13.0		16.0		25.0		8.0		15.0		19.0		21.0	
	12-20 MHz		22.0		20.0		22.0		22.0		22.0		22.0		22.0		22.0		22.0
	20-470 MHz		24.0		25.0		25.0		25.0		24.0		25.0		25.0		25.0		25.0
	470-1006 MHz		22.0		22.0		22.0		22.0		22.0		22.0		22.0		22.0		22.0
	1006-1218 MHz		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0
	1218-1800 MHz		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0

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4-way specifications

Parameter		4-8T Typ.	4-8T Max.	4-11 Typ.	4-11 Max.	4-14 Typ.	4-14 Max.	4-17 Typ.	4-17 Max.	4-20 Typ.	4-20 Max.	4-23 Typ.	4-23 Max.	4-26 Typ.	4-26 Max.	4-29 Typ.	4-29 Max.
Insertion loss In-Out (dB)	5 MHz			2.3		2.4		1.6		1.8		1.0		1.0		1.0	
	12 MHz				4.0		2.2		1.8		1.6		1.2		1.2		1.2
	200 MHz				4.2		2.4		2.0		1.8		1.3		1.3		1.3
	750 MHz				4.8		3.1		2.7		2.4		1.6		1.6		1.6
	860 MHz				4.9		3.3		2.8		2.5		1.7		1.7		1.7
	1006 MHz				5.1		3.5		3.0		2.7		1.8		1.8		1.8
	1218 MHz				5.3		3.8		3.2		2.9		1.9		1.9		1.9
	1800 MHz				5.9		4.5		3.9		3.6		2.2		2.2		2.2
Tap loss In-Tap (dB)	5 MHz	6.8	9.0	15.5	13.5	13.0	15.5	16.0	18.5	17.0	21.5	29.0	24.5	27.0	27.5	30.0	30.5
	12 MHz	7.5	9.0	12.0	13.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	200 MHz	7.5	9.0	12.0	13.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	750 MHz	7.5	9.0	12.0	13.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	860 MHz	7.5	9.0	12.0	13.5	14.0	15.5	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1006 MHz	7.5	9.0	12.0	13.5	14.5	16.0	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1218 MHz	7.5	9.0	12.0	13.5	14.5	16.0	17.0	18.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5
	1800 MHz	7.8	9.3	13.3	14.8	15.3	16.8	18.3	19.8	20.0	21.5	23.3	24.8	26.3	27.8	29.3	30.8

Parameter		4-8T Typ.	4-8T Min.	4-11 Typ.	4-11 Min.	4-14 Typ.	4-14 Min.	4-17 Typ.	4-17 Min.	4-20 Typ.	4-20 Min.	4-23 Typ.	4-23 Min.	4-26 Typ.	4-26 Min.	4-29 Typ.	4-29 Min.
Return loss I/P and O/P ports (dB)	5 MHz	24.0		15.0		15.0		22.0		18.0		20.0		17.0		20.0	
	12-20 MHz		16.0		16.0		16.0		16.0		15.0		16.0		16.0		16.0
	20-300 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	300-1006 MHz		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0
	1006-1218 MHz		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0
	1218-1800 MHz		13.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0
Return loss Tap ports (dB)	5 MHz	16.0		14.0		11.0		14.0		14.0		17.0		14.0		14.0	
	12-20 MHz		16.0		15.0		15.0		16.0		16.0		16.0		16.0		16.0
	20-470 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	470-1006 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	1006-1218 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
	1218-1800 MHz		16.0		16.0		16.0		16.0		16.0		16.0		16.0		16.0
Isolation Out-Tap (dB)	5 MHz			20.0		18.0		22.0		27.0		27.0		26.0		29.0	
	12-20 MHz		T		22.0		25.0		27.0		31.0		32.0		35.0		38.0
	20-470 MHz		T		26.0		30.0		31.0		35.0		35.0		36.0		39.0
	470-1006 MHz		T		25.0		27.0		28.0		30.0		31.0		34.0		37.0
	1006-1218 MHz		T		22.0		25.0		26.0		27.0		29.0		31.0		34.0
	1218-1800 MHz		T		22.0		22.0		24.0		25.0		26.0		28.0		31.0
Isolation Tap-Tap (dB)	5 MHz	28.0		12.0		19.0		18.0		35.0		13.0		21.0		24.0	
	12-20 MHz		20.0		19.0		20.0		22.0		22.0		22.0		22.0		22.0
	20-470 MHz		25.0		22.0		23.0		25.0		25.0		24.0		25.0		25.0
	470-1006 MHz		22.0		22.0		22.0		22.0		22.0		22.0		22.0		22.0
	1006-1218 MHz		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0
	1218-1800 MHz		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0

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Compatibility

Small variations in legacy housing designs can cause a maximum deviation of 2 dB in return loss. However, the insertion loss is maintained across all compatible housings.

The XFO SA/Cisco-style faceplate is specifically designed for use on legacy SA/Cisco-style housings. It is important to note that housings that claim SA/Cisco-style compatibility but have a different bypass switch design will not be compatible with the XFO SA/Cisco-style. A full list of compatible legacy housings to be determined.

Tested housings - version (date)
SA CV-6019607103 (1999)
SA CV-6019607103 (2005) (2012)
SA SSA8004001 (1997) (1998) (1999)
SA SSA-8004001 (1998)
SA 6019607101 (1996)
Cisco CV-6019607103 (2021) (2016)

XFO backbox 1.8 GHz upgrade - SA/Cisco-style Narrow backbox

RF specifications

Parameter		MHz	Min.	Typ.	Max.	Units
Through loss	I/P to O/P ports	5-752			0.8	dB
		752-1218			1	dB
		1218-1825			2.2	dB
Return loss	All ports	5-1000	-12			dB
		1000-1218	-8			dB

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General specifications

Parameter		Min.	Typ.	Max.	Units
Frequency range	I/P to O/P ports	12		1800	MHz
	Tap ports	12		1800	MHz
Connectors	I/P and O/P ports		5/8		
Impedance	All ports		75		Ω
Surge	All ports	3		6	kV
Power passing	I/P to O/P ports		10	12	A
Shielding	5-1218 MHz	110			dB
	1218-1800 MHz	100			dB
Screening effectiveness	5-100 MHz	90			dB
	100-750 MHz	90			dB
	750-1006 MHz	90			dB
	1006-1218 MHz	90			dB
	1218-1800 MHz	80			dB
Temperature	Operating	-40°C to +60°C (-40°F to +140°F)			°C/°F
	Storage	-40°C to +70°C (-40°F to +158°F)			°C/°F
	Spec	+20°C to +25°C (+68°F to +77°F)			°C/°F

Order information

XFO Faceplate Upgrade Kits and legacy-style housing are sold separately.

Item number	Item code	Description
2-way taps		
19015239	XFOSNZ-2-4T	FACEPLATE ONLY SA NARROW 2-WAY 4 dB 1.8 GHz TERM + BBPI
19015240	XFOSNZ-2-8	FACEPLATE ONLY SA NARROW 2-WAY 8 dB 1.8 GHz + BBPI
19015241	XFOSNZ-2-11	FACEPLATE ONLY SA NARROW 2-WAY 11 dB 1.8 GHz + BBPI
19015242	XFOSNZ-2-14	FACEPLATE ONLY SA NARROW 2-WAY 14 dB 1.8 GHz + BBPI
19015243	XFOSNZ-2-17	FACEPLATE ONLY SA NARROW 2-WAY 17 dB 1.8 GHz + BBPI
19015244	XFOSNZ-2-20	FACEPLATE ONLY SA NARROW 2-WAY 20 dB 1.8 GHz + BBPI
19015245	XFOSNZ-2-23	FACEPLATE ONLY SA NARROW 2-WAY 23 dB 1.8 GHz + BBPI
19015246	XFOSNZ-2-26	FACEPLATE ONLY SA NARROW 2-WAY 26 dB 1.8 GHz + BBPI
19015247	XFOSNZ-2-29	FACEPLATE ONLY SA NARROW 2-WAY 29 dB 1.8 GHz + BBPI
4-way taps		
19015248	XFOSNZ-4-8T	FACEPLATE ONLY SA NARROW 4-WAY 8 dB 1.8 GHz TER + BBPI
19015249	XFOSNZ-4-11	FACEPLATE ONLY SA NARROW 4-WAY 11 dB 1.8 GHz + BBPI

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Order information

XFO Faceplate Upgrade Kits and legacy-style housing are sold separately.

Item number	Item code	Description
4-way taps		
19015250	XFOSNZ-4-14	FACEPLATE ONLY SA NARROW 4-WAY 14 dB 1.8 GHz + BBPI
19015251	XFOSNZ-4-17	FACEPLATE ONLY SA NARROW 4 WAY 17 dB 1.8 GHz + BBPI
19015252	XFOSNZ-4-20	FACEPLATE ONLY SA NARROW 4-WAY 20 dB 1.8 GHz + BBPI
19015253	XFOSNZ-4-23	FACEPLATE ONLY SA NARROW 4-WAY 23 dB 1.8 GHz + BBPI
19015254	XFOSNZ-4-26	FACEPLATE ONLY SA NARROW 4-WAY 26 dB 1.8 GHz + BBPI
19015255	XFOSNZ-4-29	FACEPLATE ONLY SA NARROW 4-WAY 29 dB 1.8 GHz + BBPI
Backbox with bypass switch		
19015256	XFOSNZ-BB	BACKBOX ONLY XFOSNZ SA NARROW MULTITAP 1.8 GHz
Accessories		
19016035	XFOSNZ-SB	XFO SCIENTIFIC ATLANTA NARROW BODY SHORTING BAR
19016036	XFOSNZ-BBPI	XFO SCIENTIFIC ATLANTA NARROW BODY BACKBOX PLUG-IN

Signal conditioning order information

The following types of XGT series conditioning plug-ins are supported in the XFO series:

Item number	Item code	Description
1.8 GHz cable equalizers		
19013857	XGT1800-CE03	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 03 dB 1.8 GHz
19013859	XGT1800-CE06	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 06 dB 1.8 GHz
19013861	XGT1800-CE09	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 09 dB 1.8 GHz
19013863	XGT1800-CE12	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 12 dB 1.8 GHz
19013864	XGT1800-CE14	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 14 dB 1.8 GHz
19013866	XGT1800-CE18	TECHNETIX XGT/XFO PLUG-IN CABLE EQUALIZER 18 dB 1.8 GHz
1.8 GHz cable simulators		
19013870	XGT1800-CS03	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 03 dB 1.8 GHz
19013872	XGT1800-CS06	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 06 dB 1.8 GHz
19013874	XGT1800-CS09	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 09 dB 1.8 GHz
19013876	XGT1800-CS12	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 12 dB 1.8 GHz
19013877	XGT1800-CS15	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 15 dB 1.8 GHz
19013878	XGT1800-CS18	TECHNETIX XGT/XFO PLUG-IN CABLE SIMULATOR 18 dB 1.8 GHz

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