

Outdoor multitaps XFO faceplate-only 1.8 GHz upgrade Regal Narrow multitaps



- One product compatible with all original legacy Regal 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 Regal 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.

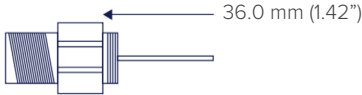
The XFO series is a 1.8 GHz upgrade faceplate for legacy-style multitaps such as Motorola, Regal or Scientific Atlanta and represents an exciting technological breakthrough by Technetix. The existing need to cut hardline cables and mount new housings has a highly impactful effect on the network, demanding 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 Regal range has exceptional RF performance to 1.8 GHz. It has the option to use signal conditioning plug-ins compatible with originally manufactured Regal housings with and without bypass switches and with third-party Regal-compatible housings that do not feature a bypass switch.

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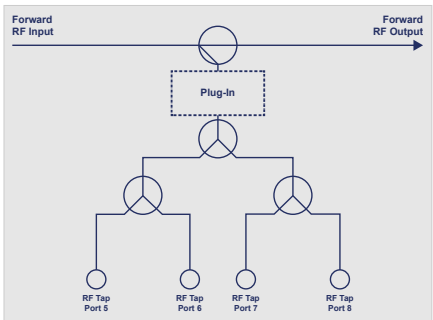
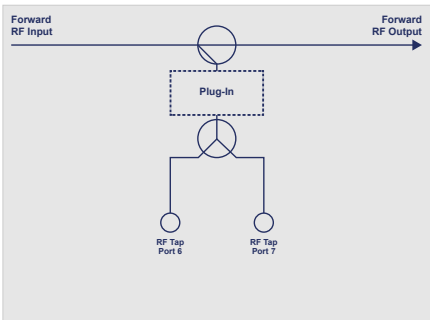


General specifications

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		
Housing material		Diecast aluminum with tri-valent chromate base layer and polyurethane powder coat top layer (blue RAL5005)
Bolts		30 in-lbs
EMI shielding	12-1218 MHz	105 dB (SCTE 48-1)
	1218-1800 MHz	95 dB (SCTE 48-1)
	Typical	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 μ S/ fall time 50 μ S)
HUM modulation		-65 dB @12 A (SCTE-16)
Salt fog		1000 h (ASTM B117)
UV degradation		1000 h (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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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																		
	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				4.9		3.1		2.6		2.3		1.5		1.4		1.4		1.4
	860 MHz				5.0		3.3		2.7		2.4		1.5		1.4		1.4		1.4
	1006 MHz				5.2		3.5		2.9		2.5		1.6		1.5		1.5		1.5
	1218 MHz				5.4		3.8		3.1		2.7		1.7		1.5		1.5		1.5
	1800 MHz				6.1		4.5		3.8		3.3		1.9		1.7		1.7		1.7
Tap loss in-tap (dB)	5 MHz																		
	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	9.5	11.0	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
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																		
	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		13.0		13.0		13.0		13.0		13.0		13.0		13.0		13.0
Return loss tap ports (dB)	5 MHz																		
	12-20 MHz		16.0		15.0		16.0		16.0		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		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																		
	12-20 MHz		T		20.0		22.0		25.0		26.0		29.0		32.0		35.0		38.0
	20-470 MHz		T		23.0		27.0		28.0		28.0		30.0		33.0		36.0		39.0
	470-1006 MHz		T		23.0		25.0		25.0		26.0		28.0		31.0		34.0		37.0
	1006-1218 MHz		T		20.0		22.0		22.0		24.0		26.0		28.0		31.0		34.0
	1218-1800 MHz		T		20.0		20.0		20.0		22.0		21.0		25.0		28.0		31.0
Isolation tap-tap (dB)	5 MHz																		
	12-20 MHz		22.0		20.0		22.0		22.0		22.0		22.0		22.0		22.0		22.0
	20-470 MHz		25.0		25.0		25.0		25.0		25.0		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		22.0		20.0		20.0		20.0
	1218-1800 MHz		19.0		19.0		19.0		19.0		19.0		19.0		19.0		19.0		19.0

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4-way specifications

Parameter		4-8T		4-11		4-14		4-17		4-20		4-23		4-26		4-29	
		Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.
Insertion loss in-out (dB)	5 MHz																
	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				4.9		3.1		2.6		2.3		1.5		1.4		1.4
	860 MHz				5.0		3.3		2.7		2.4		1.5		1.4		1.4
	1006 MHz				5.2		3.5		2.9		2.5		1.6		1.5		1.5
	1218 MHz				5.4		3.8		3.1		2.7		1.7		1.5		1.5
	1800 MHz				6.1		4.5		3.8		3.3		1.9		1.7		1.7
Tap loss in-tap (dB)	5 MHz																
	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	15.0	16.5	18.0	19.5	20.0	21.5	23.0	24.5	26.0	27.5	29.0	30.5

Parameter		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																
	12-20 MHz		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
	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		13.0		13.0		13.0		13.0		13.0		13.0		13.0
Return loss tap ports (dB)	5 MHz																
	12-20 MHz		16.0		16.0		16.0		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																
	12-20 MHz		T		22.0		26.0		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																
	12-20 MHz		20.0		20.0		20.0		22.0		22.0		22.0		22.0		22.0
	20-470 MHz		25.0		23.0		23.0		25.0		24.0		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
	1006-1218 MHz		20.0		20.0		20.0		20.0		20.0		20.0		20.0		20.0
	1218-1800 MHz		19.0		19.0		19.0		19.0		19.0		19.0		19.0		19.0

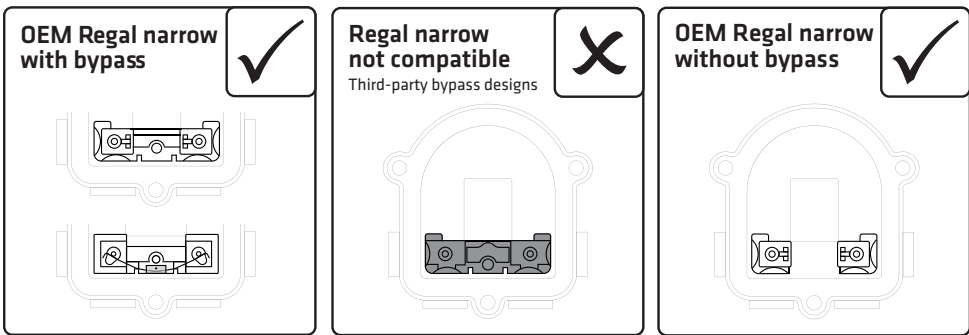
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Compatibility

Small variations in legacy housing designs can cause minimal dB variations in return loss. However, the insertion loss is maintained across all compatible housings.

The XFO Regal is specifically designed for use with legacy housings provided by original Regal suppliers. It is important to note that housings that claim Regal-style compatibility but have a different bypass switch design will not be compatible with the XFO Regal. See details below:



Tested housings (version - date code)	Return loss deviation
RRT-1x00 (95-64A-12) - 1995	2 dB
RRT-1x00 (00-64A-18) - 2000	2 dB
RRT-1x00 (99-60A-17) - 2001	2 dB
RRT-1x00 (90-64A-4) no-bypass) - 2012	2 dB
RRT-1x00 (2011 1.2GHz backbox) - 2021	5 dB
All Arris models	2 dB

Outdoor multitaps XFO faceplate-only 1.8 GHz upgrade Regal Narrow multitaps



XFO backbox 1.8 GHz upgrade Regal Narrow backbox



RF specifications

Parameter		MHz	Min.	Typ.	Max.	Units
Through loss	I/P to O/P ports	5-1218			0.8	dB
		1218-1825			1.5	dB
Return loss	All ports	5-1218	18			dB

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			6	kV
Power passing	I/P to O/P ports		10	12	A
Shielding	5-1218 MHz	105			dB
	1218-1800 MHz	95			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

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Order information

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

Item number	Item code	Description
2-way taps		
19015197	XFORNZ-2-4T	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 4 dB 1.8 GHz TER
19015198	XFORNZ-2-8	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 8 dB 1.8 GHz
19015199	XFORNZ-2-11	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 11 dB 1.8 GHz
19015200	XFORNZ-2-14	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 14 dB 1.8 GHz
19015201	XFORNZ-2-17	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 17 dB 1.8 GHz
19015202	XFORNZ-2-20	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 20 dB 1.8 GHz
19015203	XFORNZ-2-23	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 23 dB 1.8 GHz
19015204	XFORNZ-2-26	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 26 dB 1.8 GHz
19015205	XFORNZ-2-29	FACEPLATE ONLY REPLACEMENT REGAL NARROW 2-WAY 29 dB 1.8 GHz
4-way taps		
19015206	XFORNZ-4-8T	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 8 dB 1.8 GHz
19015207	XFORNZ-4-11	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 11 dB 1.8 GHz
19015208	XFORNZ-4-14	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 14 dB 1.8 GHz
19015209	XFORNZ-4-17	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 17 dB 1.8 GHz
19015210	XFORNZ-4-20	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 20 dB 1.8 GHz
19015211	XFORNZ-4-23	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 23 dB 1.8 GHz
19015212	XFORNZ-4-26	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 26 dB 1.8 GHz
19015213	XFORNZ-4-29	FACEPLATE ONLY REPLACEMENT REGAL NARROW 4-WAY 29 dB 1.8 GHz
Backbox with bypass switch		
19015214	XFORNZ-BB	BACKBOX ONLY XFORNZ REGAL NARROW MULTITAP 1.8 GHz
Accessories (for gasket replacement)		
19012366	OTRGRT-N	OUTDOOR TAP REGAL GASKET REPLACEMENT TOOL - NARROW BODY
19015705	OTRGM-N	OUTDOOR TAP REGAL MESH GASKET - NARROW BODY
19015708	OTRGR-N	OUTDOOR TAP REGAL RUBBER GASKET - NARROW BODY

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

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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 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