

- DOCSIS 3.1 ready
- Extra low insertion (through) loss
- Lower value taps are designed to compensate cable loss
- Improved tap loss flatness
- RF and power bypass capability
- Compatible with existing Regal taps



## Overview

The Technetix OTRX series of Regal compatible outdoor taps have been developed to provide the lowest insertion loss of any outdoor passive currently on the market. Saves up to 0.9 dB at 1.2 GHz per tap compared to conventional Regal style! When cascaded in series 7-8 dB in insertion loss is achievable in a cascade of nine taps. Reduced insertion loss enables customer to build their cascade with less line amplifiers. Saving overall network build cost, power cost and there by reduction in maintenance cost. Tap loss flatness is improved (in general for all tap values) compared to conventional Regal style taps.

Lower tap values are further down in the network and therefore the RF input signals are more tilted. This feature will deliver flatter signals across the frequency band to the subscribers. Tilt compensation is implemented for tap values below 17 dB. Available in left- and right-hand configurations. Offered in full taps and faceplate option.

All OTRX 2-way outdoor taps are mechanically identical in shape with tap values between 4 and 20 dB. All taps feature sealed female F-ports for drop cable connection on the faceplate and 5/8"-24NEF female ports for input and output cable connection on the housing.

The housing has an AC-RF bypass switch as standard, allowing faceplates to be changed without loss of power or RF through the tap housing. The faceplates are compatible with other Regal hardware. Taps may be strand mounted through the clamp at the back of the housing or can be surface mounted with an optional bracket. Also, both the housing and connector design and material selection combine to provide first class leading corrosion resistance.

## Specifications

Characteristic	Port type	MHz	4 dB		8 dB		11 dB		14 dB		17 dB		Units	Notes
			Typ	Max	Typ	Max	Typ	Max	Typ	Max	Typ	Max		
Insertion loss	In to out	12	N/A	N/A	2.9	3.6	1.8	2.0	1.0	1.3	0.9	1.0	dB	
		65	N/A	N/A	3.1	3.5	1.3	1.9	0.8	1.2	0.6	0.9	dB	
		85	N/A	N/A	3.1	3.6	1.3	2.1	0.8	1.3	0.6	1.0	dB	
		105	N/A	N/A	3.1	3.6	1.3	2.2	0.8	1.4	0.6	1.0	dB	
		204	N/A	N/A	3.2	3.8	1.4	2.3	0.8	1.5	0.6	1.0	dB	
		258	N/A	N/A	3.3	3.9	1.4	2.3	0.8	1.5	0.6	1.0	dB	
		470	N/A	N/A	3.7	4.2	1.6	2.5	1.0	1.6	0.7	1.0	dB	
		600	N/A	N/A	3.9	4.4	1.7	2.8	1.0	1.8	0.8	1.1	dB	
		860	N/A	N/A	4.2	4.5	2.1	3.1	1.5	2.0	0.9	1.3	dB	
		1000	N/A	N/A	4.4	4.6	2.4	3.2	1.8	2.1	1.0	1.4	dB	
		1218	N/A	N/A	4.4	4.7	3.0	3.3	2.0	2.0	1.3	1.5	dB	
Tap loss	In to out	12	9.4	10.6	12.6	13.8	15.0	16.7	16.3	17.8	18.3	20.6	dB	
		65	9.4	10.6	12.2	13.4	15.5	16.7	16.7	17.8	19.5	20.6	dB	
		85	9.4	10.6	12.2	13.4	15.5	16.6	16.7	17.8	19.5	20.6	dB	
		105	9.3	10.5	12.2	13.3	15.5	16.6	16.7	17.8	19.5	20.6	dB	
		204	9.0	10.2	11.9	13.1	15.3	16.4	16.6	17.7	19.4	20.5	dB	
		258	8.8	10.0	11.8	12.9	15.1	16.2	16.5	17.6	19.3	20.4	dB	
		470	7.6	8.8	11	12.2	14.3	15.4	16.0	17.1	18.8	19.9	dB	
		600	6.8	8.0	10.2	11.4	13.7	14.7	15.6	16.7	18.5	19.6	dB	
		860	5.2	6.4	8.9	10.1	12.5	13.4	15.3	16.0	18.2	19.1	dB	
		1000	4.6	5.8	8.6	9.7	12.1	12.8	15.2	15.7	18.0	18.7	dB	
		1218	4.3	5.5	8.6	9.7	11.7	12.4	14.7	15.2	17.7	18.2	dB	
			<b>Min</b>		<b>Min</b>		<b>Min</b>		<b>Min</b>		<b>Min</b>			
Return loss	All ports	12 - 1218	16		16		16		16		16		dB	
Isolation	Tap to tap	12 - 15	20		20		20		20		20		dB	
		15 - 65	25		25		25		25		25		dB	
		65 - 860	25		25		25		25		25		dB	1
		860 - 1218	20		20		20		20		20		dB	
Directivity	Out to tap	12 - 15	N/A		22		22		23		27		dB	
		15 - 65	N/A		24		28		26		31		dB	
		65 - 600	N/A		26		27		32		29		dB	
		600 - 860	N/A		24		25		29		27		dB	
		860 - 1218	N/A		22		21		22		24		dB	
Screening efficiency		12 - 300	>95									dB	2	
		300 - 470	>90									dB	2	
		470 - 950	>85									dB	2	
		950 - 1218	>85									dB	2	

## Specifications

Characteristic	Port type	MHz	20 dB		23 dB		26 dB		29 dB		Units	Notes
			Typ	Max	Typ	Max	Typ	Max	Typ	Max		
Insertion loss	In to out	12	0.5	0.7	0.5	0.7	0.5	0.7	0.5	0.7	dB	
		65	0.3	0.6	0.3	0.6	0.3	0.6	0.3	0.6	dB	
		85	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	dB	
		105	0.3	0.8	0.3	0.8	0.3	0.8	0.3	0.8	dB	
		204	0.4	0.8	0.3	0.8	0.3	0.8	0.3	0.8	dB	
		258	0.4	0.9	0.3	0.9	0.3	0.9	0.3	0.9	dB	
		470	0.5	0.9	0.4	0.9	0.4	0.9	0.4	0.9	dB	
		600	0.6	0.9	0.5	0.9	0.5	0.9	0.5	1.1	dB	
		860	0.7	1.1	0.6	1.1	0.6	1.1	0.6	1.1	dB	
		1000	0.9	1.2	0.7	1.2	0.7	1.2	0.7	1.2	dB	
		1218	1.1	1.3	1.0	1.3	1.0	1.3	1.0	1.3	dB	
Tap loss	In to out	12	20.6	22.7	22.2	24.2	24.9	27.2	28.1	30.2	dB	
		65	21.4	22.7	23.1	24.2	25.9	27.2	29.0	30.2	dB	
		85	21.4	22.7	23.1	24.2	25.9	27.2	29.0	30.2	dB	
		105	21.4	22.6	23.1	24.2	25.9	27.2	29.0	30.2	dB	
		204	21.4	22.5	23.0	24.2	25.9	27.2	29.0	30.2	dB	
		258	21.5	22.4	23.0	24.2	25.9	27.2	29.0	30.2	dB	
		470	21.3	22.0	22.9	24.2	25.8	27.2	29.0	30.2	dB	
		600	21.1	21.8	22.8	24.2	25.8	27.2	29.0	30.2	dB	
		860	20.8	21.5	22.7	24.2	25.9	27.2	29.0	30.2	dB	
		1000	20.8	21.4	22.6	24.2	25.8	27.2	29.0	30.2	dB	
		1218	20.6	21.2	22.6	24.2	25.6	27.2	29.0	30.2	dB	
			Min		Min		Min		Min			
Return loss	All ports	12 - 1218	16		16		16		16		dB	
Isolation	Tap to tap	12 - 15	22		22		23		23		dB	
		15 - 65	26		26		26		26		dB	
		65 - 860	26		26		26		26		dB	1
		860 - 1218	20		20		20		20		dB	
Directivity	Out to tap	12 - 15	30		30		31		33		dB	
		15 - 65	36		36		36.5		40		dB	
		65 - 600	31		33		34.5		38		dB	
		600 - 860	28		30		32		35		dB	
		860 - 1218	25		26		28		30		dB	
Screening efficiency		12 - 300	> 95							dB	2	
		300 - 470	>90							dB	2	
		470 - 950	>85							dB	2	
		950 - 1218	>85							dB	2	

## General specifications

Characteristic	Port type	Min	Typ	Max	Unit	Notes
Frequency range	All Ports	12		1218	MHz	
Connectors	I/P, O/P		5/8			
	TAP		F- female			
Temperature range	Operating	-40		+60	°C	5
	Storage	-40		+60	°C	
	Spec	+20		+25	°C	
Impedance	RF I/P		75		Ω	
	RF O/P 1,2		75		Ω	
Surge	All Ports	2			kV	2
Power passing	I/P to O/P		7	10	A	
HUM	12 - 860 MHz			65	dB	3
	860 - 1218 MHz			65	dB	3
Shielding	12 - 1218 MHz	110			dB	4
Equipment approval			CE			

## Environmental specifications

Condition	Standard	Severity
Degree of protection provided by the enclosure	BS EN 60529 1992	IP68, 1 metre immersion 1 week duration
Salt fog	BS EN 60068-2-52 1996, Test Kb. Salt mist cyclic	Severity 5 (672 hrs)
Drop	The unpackaged device under test (DUT) must be able to withstand a 1metre drop from all 6 planes using a test device such as the Accudrop series drop tester dropping to a cement floor.	Device shall survive without degradation in Electrical performance of more than +/-0.5 dB insertion loss/2 dB isolation and return loss also without allowing breaks in back plate or F-port seals.
UV	UV testing conducted as per ASTM G154 for 1000 hours using UVA-340 lamps, or ASTM G53 for 500 hours using UVB-313 lamps.	Samples shall be rotated 90° every 125 hours. A repetitive cycle of 4 hours UV at 60° C followed by 4 hours condensation at 50° C shall be used resulting in a total test time of 1000 hours
Temperature cycle	ANSI/SCTE 153 2008	15 cycles of: 2 hrs at the low limit -40° C, 1hr transition to high limit +60° C at 95% RH, wait 2 hrs then 1 hr transition to low limit. The device must meet all performance requirement during and after test.
Damp heat cyclic	60068-2-30:2005 Test Db damp heat cyclic (12hr + 12hr)	55° C 6 cycles, 95% RH
Vibration	BELLCORE GR-2873-CORE	The sample shall be subjected to simple harmonic motion having vertical amplitude of 0.762mm (0.03"), the frequency varying uniformly between 10 Hz and 55 Hz for 20 minutes. The entire frequency range from 10 to 55 Hz and back to 10 Hz shall be traversed in one minute.

## Mechanical specifications

Connectors	Input and output	5/8" –24 female, physical dimensions specified in ANSI/SCTE91 2009
	TAP	Female F-type, comply with IEC 61169-24 - Outdoor female 'F'-socket Material Brass, NiSn plated. inner contact material phosphorous bronze, AG plated All ports sealed
Lid and housing	Material	Die-cast aluminum
	Coating	Tri-valent chromate base layer, paint top layer

### Notes

1	F > 40 MHz -1.5 dB/oct No greater than -20 dB
2	IEEE-C62.14, Combination Wave, Category B1 (rise time 1,2 μS/ fall time 50 μS). No degradation allowed
3	Measured at 7 A (Test setup in accordance to ANSI-SCTE-16)
4	Tested according to SCTE IPS-TP403
5	Deviation over temperature: +/-0,5 dB insertion loss. +2 dB Isolation and return loss

## Order information

Item number	Item code	Description
19012700	OTRX-2-4-LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 4DB T 1.2G LH
19012742	OTRX-2-4LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 4DB T 1.2G LH FP
19012721	OTRX-2-4LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 4DB T 1.2G RH
19012763	OTRX-2-4LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 4DB T 1.2G RH FP
19012701	OTRX-2-8-LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 8DB 1.2G LH
19012743	OTRX-2-8LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 8DB 1.2G LH FP
19012722	OTRX-2-8LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 8DB 1.2G RH
19012764	OTRX-2-8LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 8DB 1.2G RH FP
19012702	OTRX-2-11LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 11DB 1.2G LH
19012744	OTRX-2-11LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 11DB 1.2G LH FP
19012723	OTRX-2-11LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 11DB 1.2G RH
19012765	OTRX-2-11LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 11DB 1.2G RH FP
19012703	OTRX-2-14LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 14DB 1.2G LH
19012745	OTRX-2-14LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 14DB 1.2G LH FP
19012724	OTRX-2-14LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 14DB 1.2G RH
19012766	OTRX-2-14LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 14DB 1.2G RH FP
19012704	OTRX-2-17LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 17DB 1.2G LH
19012746	OTRX-2-17LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 17DB 1.2G LH FP
19012725	OTRX-2-17LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 17DB 1.2G RH
19012767	OTRX-2-17LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 17DB 1.2G RH FP
19012705	OTRX-2-20LL	O/D TAP REGAL LOW LOSS NARROW 2-WAY 20DB 1.2G LH
19012747	OTRX-2-20LLF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 20DB 1.2G LH FP
19012726	OTRX-2-20LR	O/D TAP REGAL LOW LOSS NARROW 2-WAY 20DB 1.2G RH
19012768	OTRX-2-20LRF	O/D TAP REGAL LOW LOSS NARROW 2-WAY 20DB 1.2G RH FP