

# 1 GHz Tap Plug-Ins



For Motorola<sup>®</sup>, Antronix<sup>®</sup>, and Technetix Taps

## Tap Signal Conditioner

PARAMETER	SPECIFICATION	UNIT
Passband	50-1000	MHz
Flatness	+/-0.5	dB
Insertion Loss (Max)	1	dB

## Cable Equalizer (CE) Plug-In Module

The 1 GHz cable equalizer is used to equalize the enter bandwidth from 5 to 1000 MHz. The cable equalizer is normally used in taps toward the end of the line where the signal levels typically have reverse tilt. Reverse tilt is defined as having more signal level at 55 MHz than at 870 MHz or 1 GHz. This equalizer will reduce the

levels of the lower frequencies. The equalizers can replace the older style "inline" equalizers. These are only offered at 1 GHz, therefore, systems operating at less than 1 GHz should consider the higher losses at lower frequencies due to the tilt loss of the equalizer.

Specification	Freq. (MHz)	T-EQ-2	T-EQ-4	T-EQ-6	T-EQ-8	T-EQ-10	T-EQ-12	T-EQ-14	T-EQ-16
Part Number		356102	356104	356106	356108	356110	356112	356114	356116
Cable EQ Value (dB nominal)		2	4	6	8	10	12	14	16
Drop Insertion Loss* (dB nominal)	5	2.9	4.1	6	7.3	9.2	10.8	12.6	14.1
	10	2.9	4.1	6	7.3	9.2	10.8	12.6	14.1
	40	2.9	4	5.9	7.2	9	10.6	12.3	13.7
	50	2.8	4	5.9	7.1	8.9	10.5	12.2	13.6
	300	2.3	2.9	3.7	4.5	5.4	6.3	6.9	7.3
	450	1.8	2	2.4	3	3.6	4.4	4.8	5.1
	550	1.5	1.4	1.6	2	2.4	3.1	3.3	3.6
	750	0.9	0.7	0.8	0.9	1.2	1.7	1.7	1.9
	870	0.6	0.5	0.6	0.6	0.7	1.2	1.1	1.2
	1000	0.6	0.5	0.5	0.5	0.6	0.8	0.8	0.9



## Cable Simulator (CS) Plug-In Module

The cable simulator is used in designs that utilize high output amplifiers with high tilt levels. Many 870 and 1000 MHz amplifiers have 14 dB of tilt at the output of the amplifier. The 14 dB tilt provides 14 dB more signal level at 870 /1000 MHz than at 55MHz. The cable simulator “equalizes” the

higher frequencies where the separation will be less than 14 dB out of the tap ports. The CS is the opposite of the CE. The higher frequencies will be attenuated more than the lower frequencies. The cable simulator is normally used in the first few taps after an amplifier.

Specification	Freq. (MHz)	T-CS-3	T-CS-6	T-CS-9	T-CS-9	T-CS-12	T-CS-12
Part number		356103C	356106C	356109C	356109C	356112C	356112C
Taps		(2,4,&8 tap)	(2,4,&8 tap)	(2 & 4 tap)	(8 tap)	(2 & 4 tap)	(8 tap)
Cable Simulator Value (dB nominal)		3	6	9	10.2	12	13.4
Drop Insertion Loss* (dB nominal)	5	0.1	.01	.01	.01	.01	.01
	10	.01	.01	.01	.01	.01	.01
	40	.01	.01	.01	.01	.01	.01
	50	.01	.01	.01	.01	.01	.01
	108	0.3	0.2	0.3	0.3	0.4	.04
	300	1.4	1.6	1.9	2	2.5	2.7
	450	2.1	2.9	3.7	3.9	4.7	5.2
	550	2.4	3.7	4.9	5.3	6.3	6.9
	750	2.9	5	7.5	8.1	9.5	11
	870	3.1	5.6	9.2	10.2	11.4	13.4
	1000	3.3	6.1	11.2	12.1	14.3	15.1



## Return Path Attenuator (RPA) Plug-In Module

The return path attenuator is used in systems deploying high speed data services that are utilizing the return path. The return path attenuator is normally used in low value taps toward the end of the distribution system which have low loss in the return path. This allows the modems to

remain in the range of 42-55 dB output levels instead of lowering their levels to 30-35 dB. This plug-in adds additional attenuation in the reverse path to improve the signal to noise ratio for a specific customer in the return path.

Specification	Freq. (MHz)	T-RPA/2	T-RPA/4	T-RPA/6	T-RPA/8	T-RPA/10	T-RPA/12	T-RPA-14	T-EQ-16	T-RPA-18
Part Number		357402R	357404R	357406R	357408R	357410R	357412R	357414R	357416R	357418R
Return Bandwidth	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz	5-40 MHz
Return Path Attenuation		2.5	4.5	6.5	8.5	10.5	12.5	14.5	16.5	18.5
Tolerance	5-30 MHz	1	1	1	1	1	1	1	1	1
	31-40 MHz	4	4	4	4	4	4	4	4	4
Drop Insertion Loss* (dB nominal)	5	2.5	4.5	6.6	8.6	10.9	12.9	14.9	16.8	18.4
	30	3.4	5.2	7.1	8.9	11.1	13.1	15.5	17.2	19.6
	40	5.7	7.5	9.7	11.4	13.8	15.9	16.8	19.8	21.5
	52	1.5	1.5	1.5	1.4	1.6	1.7	1.8	1.8	1.8
	54	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	750	0.4	.04	0.4	0.3	0.4	0.4	0.4	0.4	0.4
	870	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
	1000	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3



## Forward Path High Tap Attenuator (HT) Plug-In Module

The high tap value Plug-in is used in system designs that are utilizing amplifiers with high output levels. The mid-value taps such as 20 and 23 dB are required to achieve acceptable upstream levels from the cable modems. Many MSOs do not utilize tap values above a 23 dB tap, which can provide excessive signal in the forward

path. If 55 dB is supplied to the input of a 23 dB tap, this allows for 32 dB out of the drop ports of the tap. This can overload the input to a television, so the HT plug-in attenuates the forward path by 3, 6, 9, or 12 dB to prevent overload situations. The HT is normally utilized in the first few taps out of the amplifier.

Specification	Freq. (MHz)	HT-3	HT-6	HT-9	HT-12
Part Number		358103	358106	358109	358112
Return Bandwidth	5-42 MHz	5-42 MHz	5-42 MHz	5-42 MHz	5-42 MHz
Forward Bandwidth	54-1000 MHz	54-1000 MHz	54-1000 MHz	54-1000 MHz	54-1000 MHz
Flatness	±.5dB	±.5dB	±.5dB	±.5dB	±.5dB
Return Loss	>16 dB	>16 dB	>16 dB	>16 dB	>16 dB
	<b>Reverse</b>				
Drop Insertion Loss*	5	0.65	0.65	0.65	0.65
(dB nominal)	30	1	1	1	1
	42	2.5	2.5	2.5	2.5
	<b>Forward</b>				
	54	3.7	5.9	10	12
	1000	3.5	5.8	9.5	11.5