



AMPLIFIERS

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PCT's 1 GHz multimedia drop amplifiers provide ultra-low noise amplification of broadband signals for subscriber drop installations. Within broadband networks, changes in signal level resulting from growing installations of new subscriber services, including the deployment of digital set-top boxes and cable modems, has increased the demand for high quality drop amplifiers. PCT's line offers a cost-effective solution with advanced performance in distortions and pass band response. All ports include PCT's patented Digital Seizure Mechanism (DSM) for superior center conductor retention, electrical performance, and surge withstand. Products are available in 1-, 2-, 4-, and 8-port models, with active or passive return options.



GENERAL FEATURES & BENEFITS

- Lowest distortions performance available.
- Patented DSM seizure technology provides increased spring retention for better surface contact.
 - ▶ Patented design to increase spring retention for better surface contact – even after repeated entry across maximum to minimum center conductor diameters
 - ▶ Gold-plated, beryllium copper construction for better corrosion resistance, impedance matching, and less common path distortion
- 6 kV surge withstand on all RF ports (B3)
- 6 kV surge withstand (B3) on the power adapter
- Precision machined SCTE-compliant sealed "F" ports
- Lightweight powder coated and weather-sealed housing for superior corrosion protection
- Local or remote powered
- Drop amplifiers available in the following configurations:
 - ▶ Forward with passive reverse
 - ▶ Combined active forward and reverse
 - ▶ Reverse only
- All ports on one side, 1 port passive return version available
- 10 to 15 dB forward gain, passive reverse, 1 port version available

GENERAL SPECIFICATIONS

- Drop-line powering capability via optional power inserter PCT-MPI-1G
- Direct powering capability via PWR IN F-Port using included wall transformer
- White powder coated aluminum w/ weather seal RFI gasket on rear housing plate
- Machined brass, nickel plated input and output F-ports (Standard PCT-F61DA) conform to applicable SCTE standards.
- Operating temperature between -40 to 60° C (-40 to 140° F)
- Surge withstand:
 - ▶ **PCT-MA2**
 - 6 kV, 3000 A
 - 1.2/50 - 8/20 ms combination wave as defined by IEEE C62.41-1991 for a category B3 device
 - ▶ **PCT-MAB-1015**
 - 6 kV, 3000 A
 - 1.2/50 - 8/20 ms combination wave as defined by IEEE C62.41-1991 for a category B3 device

ORDERING INFORMATION

PART NO.	DESCRIPTION
PCT-MA2-M	Ultra Mini Drop Amplifier, 1 Way Pass Return
PCT-MA2-1P	Drop Amplifier, 1 Way Pass Return with Power Inserter
PCT-MA2-1PN	Drop Amplifier, 1 Way Pass Return
PCT-MA2-2P	Drop Amplifier, 2 Way Pass Return with Power Inserter
PCT-MA2-2PN	Drop Amplifier, 2 Way Pass Return
PCT-MA2-4P	Drop Amplifier, 4 Way Pass Return with Power Inserter
PCT-MA2-4PN	Drop Amplifier, 4 Way Pass Return
PCT-MA2-8P	Drop Amplifier, 8 Way Pass Return with Power Inserter
PCT-MA2-8PN	Drop Amplifier, 8 Way Pass Return
PCT-MA2-RA	Drop Amplifier, 2 Way Return Only
PCT-MAB-1010-1AN	Drop Amplifier, 1 Way Active Return 10 dB
PCT-MAB-1010-1PN	Drop Amplifier, 1 Way Pass Return 10 dB
PCT-MAB-1015-1AN	Drop Amplifier, 1 Way Active Return 15 dB
PCT-MAB-1015-2AN	Drop Amplifier, 2 Way Active Return 15 dB
PCT-MAB-1015-4A	Drop Amplifier, 4 Way Active Return 15 dB with Power Inserter
PCT-MAB-1015-4AN	Drop Amplifier, 4 Way Active Return 15 dB
PCT-MAB-1020-1PN	Drop Amplifier, 1 Way Pass Return 20 db
(Contact PCT)	VoIP Amplifier, 8 Way
(Contact PCT)	VoIP Amplifier, 4 Way
APA1260315U*	Power Transformer, Current Limited

* (Power adapters for different countries are available. Please contact your local PCT sales office or representative.)

CROSS REFERENCE

PART NO.	OUTPUT PORTS	FORWARD PASSBAND	REVERSE PASSBAND	FORWARD GAIN PER PORT	ACTIVE OR PASSIVE RETURN	RETURN GAIN/LOSS
PCT-MA2-M	1	54-1000	5-42	15.0	Passive	-1.0
PCT-MA2-1P	1	54-1000	5-42	15.0	Passive	-1.0
PCT-MA2-2P	2	54-1000	5-42	11.5	Passive	-4.6
PCT-MA2-4P	4	54-1000	5-42	8.0	Passive	-8.0
PCT-MA2-8P	8	54-1000	5-42	4.0	Passive	-11.5
PCT-MA2-RA	1	54-1000	5-42	-1.0	Active	14.0
PCT-MA-B1010A	1	54-1000	5-42	10.0	Active	10.0
PCT-MA-B1010P	1	54-1000	5-42	10.0	Passive	-1.0
PCT-MA-B1015-1A	1	54-1000	5-42	14.0	Active	13.5
PCT-MA-B1015-2A	2	54-1000	5-42	10.5	Active	10.5
PCT-MA-B1015-4A	4	54-1000	5-42	7.0	Active	7.0
PCT-MA-B1020-1P	1	54-1000	5-42	20.0	Passive	-1.0
PCT-EMA-1015-1A	1	47-1000	5-27	14.0	Active	13.5
PCT-EMA-1015-1P	1	47-1000	5-27	14.0	Passive	-1.0
PCT-EMA-1015-2A	2	47-1000	5-27	10.5	Active	10.5
PCT-EMA-1015-2P	2	47-1000	5-27	10.5	Passive	-4.0
PCT-EMA-1015-4A	4	47-1000	5-27	7.0	Active	7.0
PCT-EMA-1015-4P	4	47-1000	5-27	7.0	Passive	-7.3
PCT-BEMA-1015-1A	1	85-1000	5-65	14.0	Active	13.5
PCT-BEMA-1015-1P	1	85-1000	5-65	14.0	Passive	-1.0
PCT-BEMA-1015-2A	2	85-1000	5-65	10.5	Active	10.5
PCT-BEMA-1015-2P	2	85-1000	5-65	10.5	Passive	-4.0
PCT-BEMA-1015-4A	4	85-1000	5-65	7.0	Active	7.0
PCT-BEMA-1015-4P	4	85-1000	5-65	7.0	Passive	-7.3
PCT-NEMA-1015-1A	1	70-1000	5-55	14.0	Active	13.5
PCT-NEMA-1015-1P	1	70-1000	5-55	14.0	Passive	-1.0
PCT-NEMA-1015-2A	2	70-1000	5-55	10.5	Active	10.5
PCT-NEMA-1015-2P	2	70-1000	5-55	10.5	Passive	-4.0
PCT-NEMA-1015-4A	4	70-1000	5-55	7.0	Active	7.0
PCT-NEMA-1015-4P	4	70-1000	5-55	7.0	Passive	-7.3

ULTRA MINI MA2

After setting the industry standard for performance and price, we're giving you more space to relieve congested installs and the ability to add new services through existing NIDs.

NEW!



PCT-MA2-M

FEATURES & BENEFITS

- Compact but robust package
- IEEE B3 6kV surge protection
- Patented DSM seizure in all "F" ports
- 5-year warranty
- Actual Size (W x H): 91 x 89 mm (3.6 x 3.5 in.)

SPECIFICATIONS

FORWARD PATH		PCT-MA2-M	PCT-MA2-1P	PCT-MA2-2P	PCT-MA2-4P	PCT-MA2-8P
Forward Path Frequency Range	MHz	54 - 1000	54 - 1000	54 - 1000	54 - 1000	54 - 1000
Amplification Device		-RF Amplification IC - GaAs HBT				
Gain (typical)	dB	15	15	11.5	8	4
Gain Tolerance	dB	+1 / -1	+1 / -1	+1 / -1	+1 / -1	+1 / -1
Flatness (peak-to-valley)	dB	1	1	1	1	1
Rated Output Level ¹	dBmV	25	25	21.5	18	14
Return Loss	dB	≥ 18	≥ 18	≥ 18	≥ 18	≥ 18
Isolation ²	dB	-	-	22	22	22
Group Delay (54 - 60 MHz)	ns	< 20 / 3.58 MHz	< 20 / 3.58 MHz	< 20 / 3.58 MHz	< 20 / 3.58 MHz	< 20 / 3.58 MHz
Group Delay (60 - 66 MHz)	ns	< 10 / 3.58 MHz	< 10 / 3.58 MHz	< 10 / 3.58 MHz	< 10 / 3.58 MHz	< 10 / 3.58 MHz
Group Delay (66 - 1000 MHz)	ns	< 5 / 3.58 MHz	< 5 / 3.58 MHz	< 5 / 3.58 MHz	< 5 / 3.58 MHz	< 5 / 3.58 MHz
Noise Figure	dB	2.7 avg. (4 max.)	2.7 avg. (4 max.)	2.7 avg. (4 max.)	2.7 avg. (4 max.)	2.7 avg. (4 max.)
Composite Second Order Distortions	dBc	< -62	< -62	< -62	< -62	< -62
Composite Triple Beat Distortions	dBc	< -79	< -79	< -79	< -79	< -79
Cross Modulation Distortions	dBc	< -75	< -75	< -75	< -75	< -75
Hum Modulation	dBc	< -75	< -75	< -75	< -75	< -75
RETURN PATH						
Return Path Frequency Range	MHz	5 - 42	5 - 42	5 - 42	5 - 42	5 - 42
Insertion Loss (5 - 40 MHz)	dB	< 1	< 1	< 4.6	< 8	< 11.5
Insertion Loss (40 - 42 MHz)	dB	< 1.5	< 1.5	< 4.6	< 8	< 11.5
Flatness (peak-to-valley)	dB	1	1	1	1	1
Return Loss	dB	≥ 18	≥ 18	≥ 18	≥ 18	≥ 18
Isolation ² (5 - 42 MHz)	dB	-	-	24	24	24
Group Delay (5 - 10 MHz / 36 - 42 MHz)	ns	< 20 / 1 MHz	< 20 / 1 MHz	< 20 / 1 MHz	< 20 / 1 MHz	< 20 / 1 MHz
Group Delay (10 - 36 MHz)	ns	< 5 / 1 MHz	< 5 / 1 MHz	< 5 / 1 MHz	< 5 / 1 MHz	< 5 / 1 MHz
Hum Modulation	dBc	< -75	< -75	< -75	< -75	< -75
GENERAL						
RFI Shielding	dB	> 100	> 100	> 100	> 100	> 100
Nominal Impedance	ohm	75	75	75	75	75
Surge Withstand Capability (all RF ports)		-Conforms to ANSI/SCTE 81 2003, IEEE C62.41 Cat. B3 Waveform				
Operating Temperature	°C	-40 - +60	-40 - +60	-40 - +60	-40 - +60	-40 - +60
F-ports		-Conforms to ANSI/SCTE 01 1996R2001; sealed; able to hold 15 psi				
Total Power Consumption (transformer + amplifier)	Watt	< 5	< 5	< 5	< 5	< 5

Notes ¹ 79 analog channels (54-552 MHz) at 10 dBmV/ch. + 33 digital channels (552-750 MHz) at -6 dBc (total channel power), relative to analog carriers. All channels flat.
² Output-to-output

SPECIFICATIONS

FORWARD PATH	PCT-EMA-1015-1	PCT-EMA-1015-2	PCT-EMA-1015-4
Forward Frequency Range	47 - 1000 MHz	47 - 1000 MHz	47 - 1000 MHz
Typical Gain (per output port)	14.0 dB	10.5 dB	7.0 dB
Rated Output Level (dBuV), Channels PAL	83.5 @ 60	80.5 @ 60	77 @ 60
Output Port-to-Port Isolation			
15-25 MHz	N/A	35 dB	35 dB
5-15 MHz & 47-1000 MHz	N/A	20 dB	20 dB
RF Amplification Device	IC-GaAs HBT	IC-GaAs HBT	IC-GaAs HBT
Passband Response	± 0.5 dB	± 0.5 dB	± 0.5 dB
Noise Figure @ 21° F (70° F)	3.8 dB	3.8 dB	3.8 dB
Return Loss, All Ports	20 dB (Min.)	20 dB (Min.)	20 dB (Min.)
Composite Second Order Distortions ¹	≤ -80 dBc	≤ -80 dBc	≤ -80 dBc
Composite Triple Beat Distortions ¹	≤ -90 dBc	≤ -90 dBc	≤ -90 dBc
Cross Modulation Distortions ¹	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Hum Modulation	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Group Delay (ns)			
@ 54 - 76 MHz	≤ 20 / 3.58 MHz	≤ 20 / 3.58 MHz	≤ 20 / 3.58 MHz
@ 76 - 1000 MHz	≤ 5 / 3.58 MHz	≤ 5 / 3.58 MHz	≤ 5 / 3.58 MHz
Shielding Effectiveness (RFI)	≥ 100 dB	≥ 100 dB	≥ 100 dB
Nominal Impedance	75 Ohm	75 Ohm	75 Ohm
REVERSE PATH (ACTIVE AND PASSIVE RETURN)			
Return Path Frequency Range	5 - 42 MHz	5 - 42 MHz	5 - 42 MHz
Passband Response	± 0.5 dB	± 0.5 dB	± 0.5 dB
Return Loss	18 dB (Min.)	18 dB (Min.)	18 dB (Min.)
Group Delay (ns)			
@ 5 MHz	≤ 20 / 1.5 MHz	≤ 20 / 1.5 MHz	≤ 20 / 1.5 MHz
@ 42 MHz	≤ 30 / 1.5 MHz	≤ 30 / 1.5 MHz	≤ 30 / 1.5 MHz
Hum Modulation	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Nominal Impedance	75 Ohms	75 Ohms	75 Ohms
PASSIVE REVERSE PATH			
Passive Return Insertion Loss	-1.0 dB	-4.0 dB	-7.3 dB
ACTIVE REVERSE PATH			
Typical Gain	13.5 dB	10.5 dB	7.0 dB
Rated Output level (dBmV), 1.5 MHz ea.	120 @ 2 Channels	120 @ 2 Channels	120 @ 2 Channels
RF Amplification Device	IC - GaAs HBT	IC - GaAs HBT	IC - GaAs HBT
Noise Figure	5.5 dB	5.5 dB	5.5 dB
Discrete Second Order ²	< -70 dBc	< -70 dBc	< -70 dBc
Discrete Triple Beat ²	< -73 dBc	< -73 dBc	< -73 dBc
Cross Modulation ²	< -75 dBc	< -75 dBc	< -75 dBc

Notes ¹ Test condition: 79 analog +33 digital NTSC Ch. loading, 70 dBμV input

² Test condition: 2 Ch. loading, 105 dBμV input

³ Test condition: 3 Ch. loading, 105 dBμV input

SPECIFICATIONS

FORWARD PATH	PCT-BEMA-1015-1	PCT-BEMA-1015-2	PCT-BEMA-1015-4
Forward Frequency Range	85 - 1000 MHz	85 - 1000 MHz	85 - 1000 MHz
Typical Gain (per output port)	14.0 dB	10.5 dB	7.0 dB
Rated Output Level (dBm V), Channels PAL	89 @ 60	85.5 @ 60	82 @ 60
Output Port-to-Port Isolation			
15 - 65 MHz	N/A	25 dB	30 dB
5 - 15 MHz & 85 - 1000 MHz	N/A	20 dB	20 dB
RF Amplification Device	IC-GaAs HBT	IC-GaAs HBT	IC-GaAs HBT
Passband Response	± 0.5 dB	± 0.5 dB	± 0.5 dB
Noise Figure @ 21° C (70° F)	3.8 dB	3.8 dB	3.8 dB
Return Loss, All Ports	20 dB (Min.)	20 dB (Min.)	20 dB (Min.)
Composite Second Order Distortions ¹	≤ -60 dBc	≤ -60 dBc	≤ -60 dBc
Composite Triple Beat Distortions ¹	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Cross Modulation Distortions ¹	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Hum Modulation	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Carrier to Noise Ratio @ 70 dBmV Input	65 dB	65 dB	65 dB
Group Delay (ns)			
@ 85 - 111 MHz	≤ 20 / 4.43 MHz	≤ 20 / 4.43 MHz	≤ 20 / 4.43 MHz
@ 111 - 1000 MHz	≤ 5 / 4.43 MHz	≤ 5 / 4.43 MHz	≤ 5 / 4.43 MHz
Shielding Effectiveness (RFI)	≥ 100 dB	≥ 100 dB	≥ 100 dB
Nominal Impedance	75 Ohm	75 Ohm	75 Ohm
<u>REVERSE PATH (ACTIVE AND PASSIVE RETURN)</u>			
Return Path Frequency Range	5 - 65 MHz	5 - 65 MHz	5 - 65 MHz
Passband Response	± 0.5 dB	± 0.5 dB	± 0.5 dB
Return Loss	18 dB (Min.)	18 dB (Min.)	18 dB (Min.)
Group Delay (ns)			
@ 5 MHz	≤ 20 / 1.5 MHz	≤ 20 / 1.5 MHz	≤ 20 / 1.5 MHz
@ 65 MHz	≤ 30 / 1.5 MHz	≤ 30 / 1.5 MHz	≤ 30 / 1.5 MHz
Hum Modulation	≤ -75 dBc	≤ -75 dBc	≤ -75 dBc
Nominal Impedance	75 Ohms	75 Ohms	75 Ohms
<u>PASSIVE REVERSE PATH</u>			
Passive Return Insertion Loss	-1.0 dB	-4.0 dB	-7.3 dB
<u>ACTIVE REVERSE PATH</u>			
Typical Gain	13.5 dB	10.5 dB	7.0 dB
Rated Output level (dBmV), 1.5 MHz ea.	120 @ 2 Channels	120 @ 2 Channels	120 @ 2 Channels
RF Amplification Device	IC - GaAs HBT	IC - GaAs HBT	IC - GaAs HBT
Noise Figure	5.5 dB	5.5 dB	5.5 dB
Discrete Second Order ²	< -70 dBc	< -70 dBc	< -70 dBc
Discrete Triple Beat ²	< -73 dBc	< -73 dBc	< -73 dBc
Cross Modulation ²	< -75 dBc	< -75 dBc	< -75 dBc

Notes 1 Test condition: 79 analog +33 digital NTSC Ch. loading, 70 dBmV input
 2 Test condition: 2 Ch. loading, 105 dBmV input
 3 Test condition: 3 Ch. loading, 105 dBmV input

PCT's MDU Distribution Amplifier is designed for indoor MDU applications requiring an amplifier with low distortions and noise performance. The PCT MDU amplifier is a low cost, high quality amplifier that includes variable gain and tilt compensation, allowing the operator to adjust the amplifier for optimum performance.



FEATURES & BENEFITS

- Various plug-in forward equalizers available
- Standard wall plug powering (85 - 265 VAC)
- Compliments PCT Mini Fiber Node
- Designed for MDU applications
- U.S., European, Latin American, and Asian models available

ORDERING INFORMATION

PART NO.	DESCRIPTION
PCT-MDA-42-RTA	MDU Distribution Amplifier, 42/54, Active Return
PCT-MDA-30-RTA	MDU Distribution Amplifier, 30/47, Active Return
PCT-MDA-65-RTA	MDU Distribution Amplifier, 65/85, Active Return

Plug-In Options

PCT-DA-EQ-x-##	Forward Equalizer
	x = Top frequencies available: 8 = 860; 7 = 750; 6 = 630; 5 = 550 MHz
	## = Tilt value: 06, 09, 12, 15, 18
	VR = variable

FEATURES & BENEFITS

- Uses GaAs-FET Technology
- Line powered version available
- Plug-in EQ
- 6000 V, 200 A ring wave surge withstand
- Connectors IN-OUT: 5/8 in. - 24



SPECIFICATIONS

FORWARD PATH	PCT-MDA-42-RTA	PCT-MDA-30-RTA	PCT-MDA-65-RTA
Forward Frequency Range	54 - 860 MHz	47 - 862 MHz	85 - 862 MHz
RF Application Device	GaAs Power Doubler Hybrid	GaAs Power Doubler Hybrid	GaAs Power Doubler Hybrid
Gain	28 dB Operational 32 dB max.	28 dB Operational 32 dB max.	28 dB Operational 32 dB max.
Passband Response	± 1 dB	± 1 dB	± 1 dB
Rated Output Level	44 dBmV @ 77	104 dB μ V @ 60 Channels flat (PAL)	
Noise Figure @ 21° C (70° F)	7 dB	7 dB	7 dB
Return Loss, All Ports	16 dB	20 dB min.	20 dB min.
Group Delay (ns)			
@ 54-76 MHz	≤ 35 / 3.58 MHz	N/A	N/A
@ 76-860 MHz	≤ 5 / 3.58 MHz	N/A	N/A
REVERSE PATH			
Return Path Frequency Range	5 - 42 MHz	5 - 30 MHz	5 - 65 MHz
Passband Response	± 1 dB	± 1 dB	± 1 dB
Rated Output Level	N/A	115 dB μ V (IMD2 > 60 dB)	115 dB μ V (IMD2 > 60 dB)
Channels Flat (NTSC)	38 dBmV @ 6	N/A	N/A
Return Loss, All Ports	16 dB min.	16 dB min.	16 dB min.
Gain	18 dB Operational 22 dB max.	18 dB Operational 22 dB max.	18 dB Operational 22 dB max.
Group Delay (ns)			
@ 5 MHz	≤ 10 / 1.5 MHz	N/A	N/A
@ 42 MHz	≤ 20 / 1.5 MHz	N/A	N/A
FORWARD / REVERSE PATH DISTORTIONS			
Composite Second Order	≤ 60 / 65 dBc	107 dB	107 dB
Composite Triple Beat	≤ 60 / 65 dBc	113 dB	113 dB
Cross Modulation	≤ 60 / 65 dBc	N/A	N/A
Hum Modulation	≤ -65 dBc	≤ -65 dBc	≤ -65 dBc
ELECTRICAL / ENVIRONMENTAL / MECHANICAL			
Power Supply	85-265 VAC; 50-60 Hz (coaxial cable powering available upon request)		
Surge Withstand	5 surges of IEEE C62.41-1991 Category A3 (6000 V, 200 A, 0.5 μ s-100 kHz ring wave)		
Shielding Effectiveness (RFI)	> 100 dB	> 100 dB	> 100 dB
Nominal Impedance	75 Ohms	75 Ohms	75 Ohms
Operational Temperature Range	0 - 50° C (32 - 122° F)		
Dimensions (W x D x H)	250 x 185 x 80 mm (9.8 x 7.3 x 3.2 in.)		
Weight	3.2 kg (7 lbs.)	3.2 kg (7 lbs.)	3.2 kg (7 lbs.)



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