

## DMM-1000AS

### Compact Modular SMATV Headend

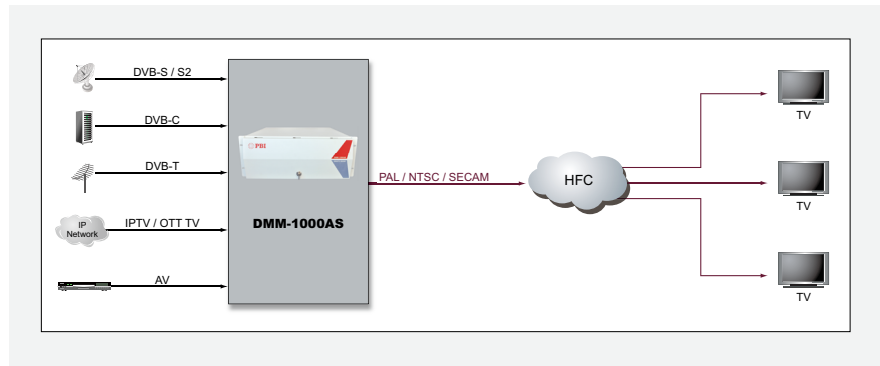
DMM-1000AS is a compact modular SMATV headend, supporting up to 16 channels in one 19" 4U chassis. It integrates multiple functions including DTV signal reception, descrambling, decoding and analog modulation. DMM-1000AS has various options for RF input front end, such as DVB-S/S2/T/T2/C, ATSC, ISDB-T and DMBT etc., moreover, analog AV and IP input are also available. Equipped with dual DVB-CI, the DMM-1000AS module can decrypt multiple pay TV services and loop through the TS to the neighbor modules through internal cables for further processing. Each DMM-1000AS module can process two MPEG-2 or H.264 HD/SD services and downscale the HD content to SD, then modulate and output via two adjacent analog RF channels. DMM-1000AS supports various analog modulation standard, such as PAL B/G, PAL D/K, NTSC, and SECAM etc. Each DMM-1000AS module can be controlled and supervised by SNMP and HTTP WEB.



#### Main Feature

- Support various analog modulation standard, such as PAL B/G, PAL D/K, NTSC, and SECAM etc.
- DVB-S/S2/T/T2, ATSC, ISDB-T, DMBT front end option
- Support IP input and analog AV input
- MPEG-2, H.264 HD/SD decoding
- Two adjacent analog RF channel output per module
- Dual DVB-CI for multi-decryption
- TS loop through between modules
- Functional module hot-swappable
- Web, SNMP remote control or handheld programmer unit local control
- 19" 4RU chassis compact modular design, supporting up to 8 modules in one chassis
- Redundant power supply
- Intelligent temperature control cooling system
- Stand alone function of each module
- Cost-saving by backward compatible with new modules
- On site software update through IP or USB

#### Application Diagram



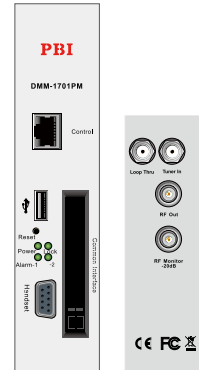
#### Product List

Product name	Model No.	Description
DMM-1000AS	DMM-1701PM	Dual Channel IRD and Analog Modulator Module
	DMM-1701IM	Dual Channel IPTV Decoder and Analog Modulator Module
	DMM-1701M	Dual Channel PAL/NTSC/SECAM modulator
	DMM-1710PM	Advanced Dual Channel IRD and Analog Modulator Module
	DMM-1701LD	8-Way Active Satellite Signal Splitter
	MM-1701CA	7-inputs Combiner and Amplifier

## ■ Signals Processing Modules

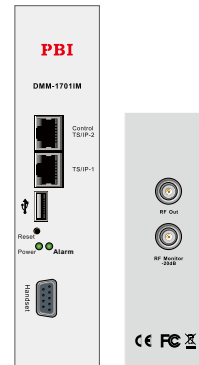
### DMM-1701PM series DVB Tuner to Analog Trans-modulator

- Multiple RF input front end option DVB-S2/S/C/T/T2, ATSC, ISDB-T, DMBT
- Two adjacent analog channels output in range of 48-860MHz
- Output level 100dB $\mu$ V per channel
- Support MPEG-2, H.264 SD/HD decoding
- Remote Control and Supervision by SNMP and HTTP WEB
- Support BISS-1, BISS-E descrambling
- Dual DVB-CI for multi-decryption
- Dynamic PMT detection and automatic updating



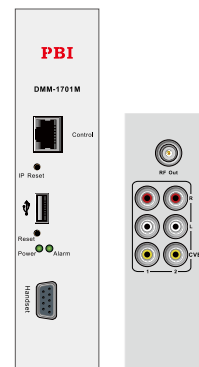
### DMM-1701IM series Twin TS/IP to Analog Trans-modulator

- Two IP multicast/unicast input ports
- Two adjacent analog channels output in range of 48-860MHz
- Supports MPEG-2, H.264 SD/HD decoding
- Output level 100dB $\mu$ V per channel
- Remote Control and Supervision by SNMP and HTTP WEB



### DMM-1701M series Twin Analog Modulator

- Two analog AV input
- Two adjacent analog channels output in range of 48-860MHz
- Modular design for easy installation and maintenance
- Output level 100dB $\mu$ V per channel
- Remote Control and Supervision by SNMP and HTTP WEB



Specification

<b>Tuner Input (for DMM-1701PM Series)</b>	
<b>DVB-S/S2 Tuner Input</b>	
Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	950~2150MHz
Input Level	-25~-65dBm
Symbol Rate	DVB-S: 1~45MBauds/s for QPSK DVB-S2: 1~45MBauds/s for QPSK, 8PSK
Roll-off Factor	DVB-S: 0.35 DVB-S2: 0.2, 0.25, 0.35
FEC Code Rate	DVB-S QPSK: 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection Voltage	0, 13V, 18V selectable
LNB Band Switching Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0
<b>DVB-C Tuner Input</b>	
Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	51~858MHz
Input Level	40~85dBμV
Symbol Rate	1~7MBaud
Constellation	16/32/64/128/256QAM (ITU J.83 Annex A)
Bandwidth	6MHz/7MHz/8MHz
<b>DVB-T Tuner Input</b>	
Connector Type	1×F type female 75Ω for Input, 1×F type female 75Ω for loop through output
Input Frequency Range	49~861MHz
Input Level	-25~-65dBm
Carrier Bandwidth	6/7/8 MHz
FTT Model	2K/8K
Guard Interval	1/4, 1/8, 1/16, 1/32
Viterb Error Correction Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
<b>IP Input (for DMM-1701IM series)</b>	
Connector Type	2×RJ-45, 10/100M
Standard	UDP, RTP, Multicast, Unicast, MPTS, SPTS
<b>A/V Input (for DMM-1701M series)</b>	
Video Input	2 sets of RCA, 75Ω
Audio Input	2 sets of RCA mono or A2(optional), 10Ω(unbalance)
<b>Descramble (for DMM-1701PM series)</b>	
Descrambler	DVB Common Scrambling Algorithm (CSA)
BISS Mode	BISS-1, BISS-E
Common Interface	Double PCMCIA slots, compatible with major CA CAMs in the market
<b>Analog channels Modulation (for DMM-1701PM/1701IM/1701M) Video</b>	

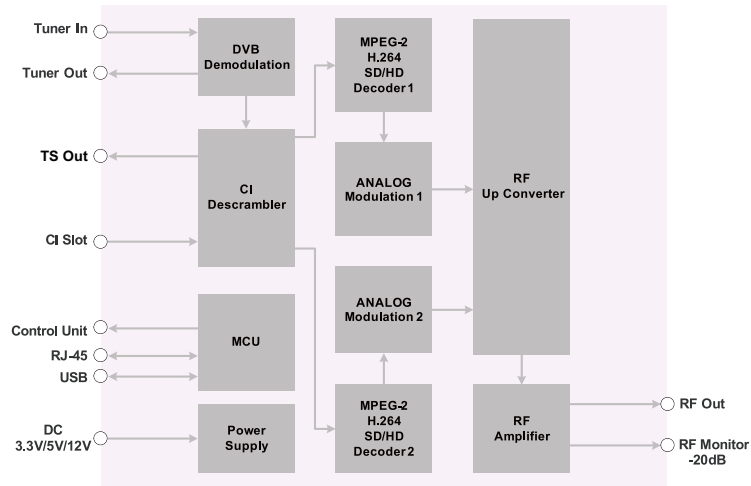
Video carrier frequency accuracy	VHF: $\Delta f \leq 5\text{KHz}$ UHF: $\Delta f \leq 10\text{KHz}$
Video modulation depth	DMM-1701M 77.5~97.5% DMM-1701PM/1701IM 87.5%
Video in-band flatness	$\leq 2\text{dB}$
Differential Gain	$\leq 7\%$
Differential Phase	$\leq 5^\circ$
Video S/N ratio	$\geq 45\text{dB}$
Chrominance/Luminance delay	$\Delta \tau \leq 45\text{nS}$
K factor of 2T pulse	$\leq 4\%$
<b>Audio</b>	
FM modulation deviation	DMM-1701M 40~160KHz (D/K, B/G, I) 20~80KHz (M/N) DMM-1701PM/1701IM 40~100KHz (D/K, B/G, I) 50KHz (M/N)
Audio frequency response	$\pm 1.5\text{dB}$ (40Hz~15KHz)
Total harmonic distortion (THD)	$\leq 1.2\%$ (1KHz tone with $\pm 60\text{KHz}$ (D/K, B/G, I) or $\pm 30\text{KHz}$ (M/N) FM deviation)
1st audio carrier frequency	6.5MHz $\pm$ 5KHz/6.0MHz $\pm$ 5KHz/5.5MHz $\pm$ 5KHz/4.5MHz $\pm$ 5KHz(basing on different standards)
2nd audio carrier frequency	6.742MHz $\pm$ 5KHz/6.258MHz $\pm$ 5KHz/5.742MHz $\pm$ 5KHz/4.742MHz $\pm$ 5KHz(basing on different standards)
Audio S/N ratio	$\geq 55\text{dB}$
Audio Pre-emphasis	50μS (B/G,D/K,I), 75μS (M/N)
<b>RF Output (for DMM-1701PM/1701IM/1701M)</b>	
Connector Type	1×F type female, 75Ω (primary output) 1×F type female 75Ω (-20dB for monitoring)
Output Frequency Range	48~860MHz adjacent, step by 10 KHz
Output Level	100 $\pm$ 3dBμV
Output Level Attenuation	0~18dB adjustable, step by 1 dB
Output Return Loss	$\geq 10\text{dB}$
<b>Control &amp; Monitoring</b>	
Connector Type	1×RJ-45, 10/100M, for equipment IP Control
Remote Control	SNMP, HTTP (Web Interface), Proprietary HDMS (Headend Device Management System)
Local Control	Handheld programmer unit
Software Upgrade	Embedded FTP loader and USB
<b>Physical</b>	
Dimension	379.7×111.5×39mm
Power Consumption	30W Max.
Operating Temperature	0- +45°C
Storage Temperature	-10~ +50°C
Operating Humidity	20~90%, non-condensed

Order Information

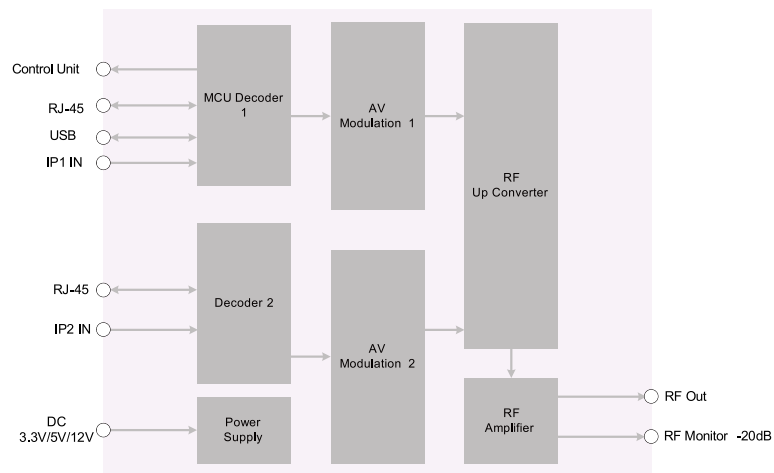
Interface	Model	1701PM-XX						1701IM-XX		1701M-XX	
		DVB-S2		DVB-T		DVB-C		MONO	A2	MONO	A2
Video Audio		MONO	A2	MONO	A2	MONO	A2	MONO	A2	MONO	A2
PAL D/K		02S2	04S2	02T	04T	02C	04C	02	04	02	04
PAL D/K(Poland)		02S2	08S2	02T	08T	02C	08C	02	08	02	08
PAL B/G		12S2	14S2	12T	14T	12C	14C	12	14	12	14
NTSC		22S2	-	22T	-	22C	-	22	-	22	-
SECAM D/K		32S2	34S2	32T	34T	32C	34C	32	34	32	34
SECAM L		42S2	-	42T	-	42C	-	42	-	42	-
PAL-I		52S2	-	52T	-	52C	-	52	-	52	-

Block Diagram

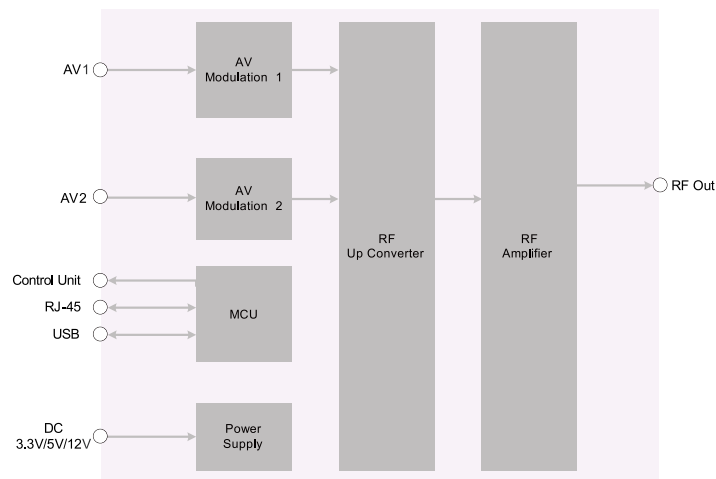
DMM-1701PM Functional Block Diagram



DMM1701IM Functional Block Diagram



DMM1701M Functional Block Diagram



## DMM-1701LD 8-Way Active Satellite Signal Splitter

DMM-1701LD is an 8-Way active L-band satellite signal splitter. The RF input port can be fed with 13/18V and 0/22KHz to drive the LNB and antenna. By using micro strip line technology, the port-to-port isolation between 8 RF outputs is higher than 40dB. It is a useful and cost effective spare part for satellite professional IRD product line.

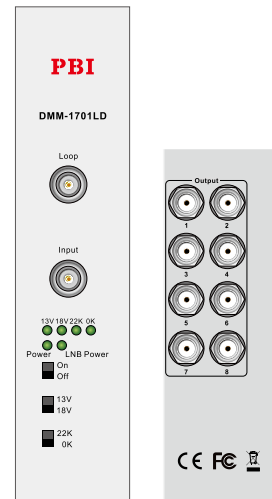
### Main Feature

- Used with professional satellite receiver and decoder modules in DMM product line
- Isolated DC between input and output based on micro strip directional coupler
- Active splitter to keep good RF output level
- High isolation between 8 RF output ports
- Loop output of RF input on front panel for supervision
- Manual LNB 13/18V, 0/22kHz switches with LED status

### Specification

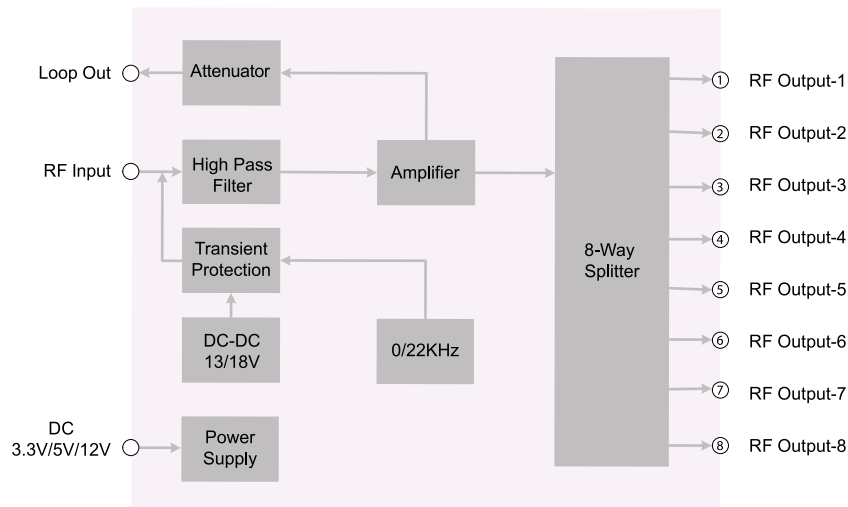
RF Input	
Input Number	1
Connector type	Type F, 75Ω
Frequency range	950MHz - 2150MHz
Input level	-65 ~ -25dBm
LNB Control	
13/18V	13±1V, 18±1.5V
0/22KHz	0.7±0.1Vpp, 22±1KHz
Load current	350mA
RF Output	
Output Number	8 outputs, 1 loop output
Connector type	Type F, 75Ω
Gain	0±2dB

Return loss	≥10dB
Flatness	±2dB
Isolation	≥40dB
Control & Monitoring	
Switch	3 switches for LNB power ON/OFF, 13V/18V and 0/22KHz
LED	6 LEDs for Power, LNB Power, 13V, 18V, 0kHz, 22kHz
Physical	
Dimension	379.7×111.5×39 mm
Power consumption	10W Max
Operation temperature	0~45°C
Storage temperature	-10~50°C



### Block Diagram

DMM-1701LD Functional Block Diagram



## DMM-1701CA High Linear Combiner and Amplifier Module

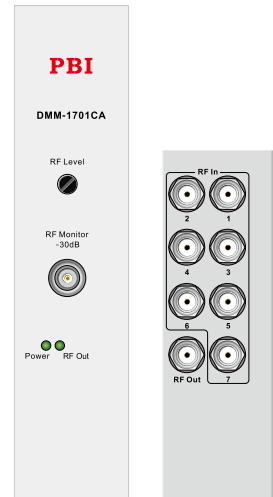
The DMM-1701CA is a high linear combiner and amplifier module which can combine 7 RF inputs into 1 RF output and amplify output level up to 110dB $\mu$ V per channel. Modular design make it very easy for installation and maintenance. User can adjust gain manually and monitor output RF signal via -30dB monitor port. DMM-1701CA is suitable for both analog and digital system.

### Main Feature

- Manual adjusted gain amplifier
- Support -30dB monitor port
- Support 7 RF input into 1 RF output
- Modularized design for easy installation and maintenance

### Specification

Connector Type	7 x F type female 75 $\Omega$ for Input, 1 x F type female 75 $\Omega$ for output, 1 x F type female 75 $\Omega$ for -30dB monitor	
Frequency Range	48 ~ 860MHz	
Input Level	100dB $\mu$ V(per channel)	
Output Level	110dB $\mu$ V(per channel)	
Input Return Loss	$\geq$ 7dB	
Output Return Loss	$\geq$ 12dB	
CTB	112CH analog, flat, Vo=44dBmV TYP: -62dBc Max.: -60dBc	
XMOD	112CH analog, flat, Vo=44dBmV TYP: -58dBc Max.: -56dBc	
CSO	112CH analog, flat, Vo=44dBmV TYP: -62dBc Max.: -60dBc	
Noise factor	MAX: 6dB	
Passband Flatness	MIN: 0.5 dB	MAX: 2.5 dB
Isolation between Input Ports	TYP: 20dB	MIN: 16.5dB
Isolation between Input and Output Ports	MIN: 27dB	



### Block Diagram

