

DMM-1000AS Compact Modular SMATV Headend

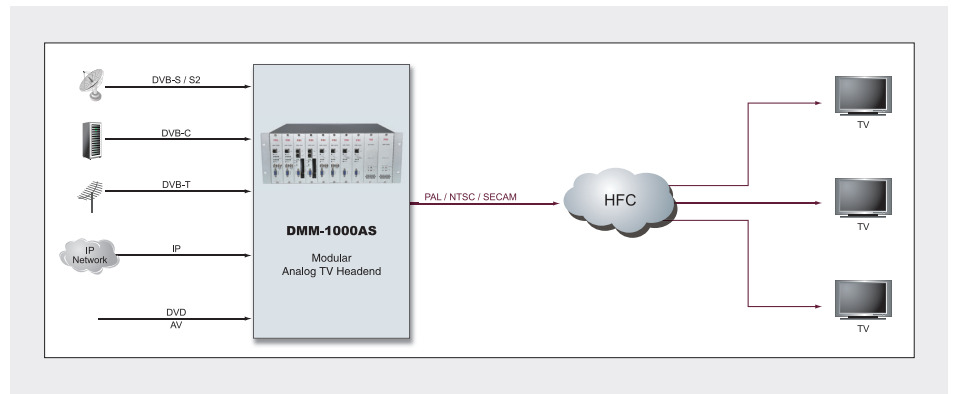
DMM-1000AS is a compact modular SMATV headend, supporting up to 16 channels in one 19" 4U chassis. It integrates multiple functions including DTV signal reception, descrambling, decoding and analog modulation. DMM-1000AS has various options for RF input front end, such as DVB-S/S2/T/T2/C, ATSC, ISDB-T 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
- Web, SNMP remote control or handheld programmer unit local control
- 19" 4RU chassis compact modular design, supporting up to 8 modules in one chassis
- Functional module hot-swappable
- 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



Independent Hot-Swappable Functional Modules



Five hot-swappable fans assembly for longer MTBF



Redundant power supply unit



Product List

Product name	Model No.	Description
Professional IRD and Analog Modulator Module	DMM-1701PM	DVB-S/S2/C/T decoder and PAL/NTSC/SECAM modulator
Professional Analog Modulator Module	DMM-1701M	PAL/NTSC/SECAM modulator
Professional IPTV Decoder and Analog Modulator Module	DMM-1701EM	IPTV decoder and PAL/NTSC/SECAM modulator
Professional CATV Combiner and Amplifier	DMM-1701CA	7-inputs Combiner and Amplifier

Chassis

DMM-1000MF Main Chassis

- Standard 4 RU chassis with 8 slots for functional modules and 2 slots for Power Supplies
- Hot-backup power supply unit
- Intelligent cooling system with temperature sensor
- Wall mounted or Rack mounted
- Compatible with new successive modules
- Power Supply: AC 90V-250V, 150Watts, 50-60Hz
- Optional Build-in IP Switch
- Dimension: L=340mm, W=483mm, H=178mm (4U)
- Operating temperature: 0 ~ 45°C (for all modules)
- Storage temperature: -10 ~ 60°C (for all modules)



DMM-1000CU Handheld Programmer Unit

- 2 × 20 LCD display screen and 6-key keypad
- No external power nor battery needed
- Easy and quick on site system configuration without PC
- Compatible with new modules
- Dimension 170 × 70 × 22 mm



DMM-1000PS Power supply

- Hot-backup power supply unit
- Power Supply: AC 90V-250V, 50-60Hz
- High reliability & efficiency
- 150Watts stable output power
- Dimension 343 × 110 × 47.5 mm

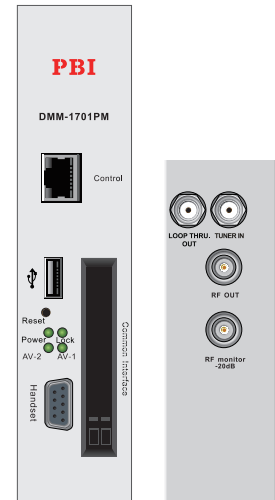


Signals Processing Modules

DMM-1701PM series

Twin Professional IRD and Analog Modulator Module

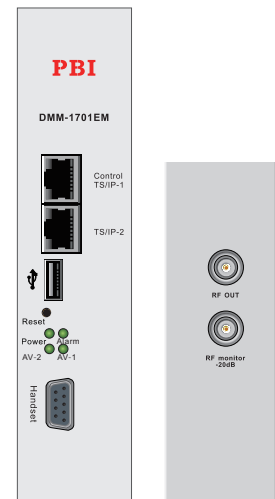
- Multiple RF input front end option DVB-S2/S/C/T/T2, ATSC, ISDB-T, DMBT
- Two adjacent analog channels output in range of 48-860MHz
- Output level 100dB μ V per channel
- Support MPEG-2, H.264 SD/HD decoding
- Remote Control and Supervision by SNMP and HTTP WEB
- Support BISS-1, BISS-E descrambling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



DMM-1701EM series

Twin IP/Analog Modulator Module

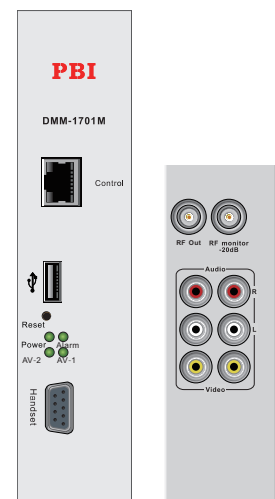
- Two IP multicast/unicast input ports
- Two adjacent analog channels output in range of 48-860MHz
- Supports MPEG-2, H.264 SD/HD decoding
- Output level 100dB μ V per channel
- Remote Control and Supervision by SNMP and HTTP WEB



DMM-1701M series

Twin AV/Analog Modulator Module

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



Specification

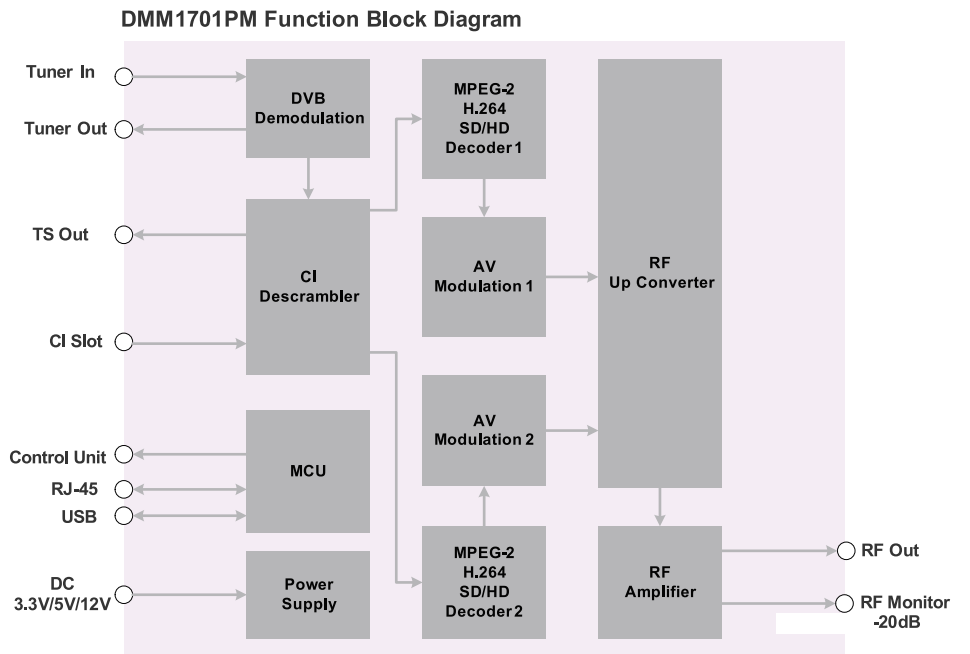
Tuner Input (for DMM-1701PM Series)	
DVB-S/S2 Tuner Input	
Connector Type	1 × F type female 75Ω for Input, 1 × F type female 75Ω for loop through output
Input Frequency Range	950 ~ 2150MHz
Input Level	-25 ~ -65dBm
Symbol Rate	DVB-S: 1~45MBauds/s for QPSK DVB-S2: 1~45MBauds/s for QPSK, 8PSK
Roll-off Factor	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
DVB-C Tuner Input	
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~ 85dB μ V
Symbol Rate	1~7MBaud
Constellation	16/32/64/128/256QAM (ITU J.83 Annex A)
Bandwidth	6MHz/7MHz/8MHz
DVB-T Tuner Input	
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
IP Input (for DMM-1701EM series)	
Connector Type	2 × RJ-45, 10/100M
Standard	UDP, RTP, Multicast, Unicast, MPTS, SPTS
A/V Input (for DMM-1701M series)	
Video Input	2 sets of RCA, 75Ω
Audio Input	2 sets of RCA mono or A2(optional), 10Ω (unbalance)
Descramble (for DMM-1701PM series)	
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

Analog channels Modulation (for DMM-1701PM/1701EM/1701M)	
Video	
Video carrier frequency accuracy	VHF: $\Delta f \leq 5\text{KHz}$ UHF: $\Delta f \leq 10\text{KHz}$
Video modulation depth	77.5 ~ 97.5% (D/K,B/G,I,M/N)
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	$\leq 4\%$
Audio	
FM modulation deviation	40 ~ 160KHz (D/K, B/G, I) 20 ~ 80KHz (M/N)
Audio frequency response	$\pm 1.5\text{dB}$ (40Hz~15KHz)
Total harmonic distortion (THD)	$\leq 1.2\%$ (1KHz tone with $\pm 60\text{KHz}$ 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	50 μ S (B/G,D/K,I), 75 μ S (M/N)
RF Output (for DMM-1701PM/1701EM/1701M)	
Connector Type	1x F type female, 75Ω (primary output) 1x F type female 75Ω (-20dB for monitoring)
Output Frequency Range	48~860MHz adjacent, step by 10 KHz
Output Level	100 \pm 2dB μ V
Output Level Attenuation	0~18dB adjustable, step by 1 dB
Output Return Loss	VHF $\geq 12\text{dB}$ UHF $\geq 10\text{dB}$
Control & Monitoring	
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
Physical	
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						1701EM-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-1701CA

High Linear Combiner and Amplifier Module

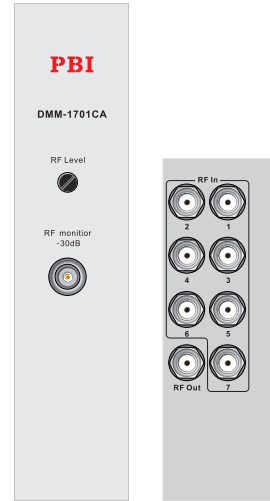
The DMM-1701CA is a high linear combiner and amplifier module which can combine 7 RF inputs into 1 RF output and amplify output level up to 110dB μ V per channel. Modular design make it very easy for installation and maintenance. User can adjust gain manually and monitor output RF signal via -30dB monitor 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 Ω for Input, 1 x F type female 75 Ω for output, 1 x F type female 75 Ω for -30dB monitor
Frequency Range	48 ~ 860MHz
Input Level	100dB μ V(per channel)
Output Level	110dB μ 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

