

# Media Converter (PMC) module

## User's Manual

### PMC100-1 / PMC100-2



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## 1 Overview

### 1.1 What You Should Get

Please check the module before using it.  
PMC100-1(Twist Pair)/ PMC100-2 (Coaxial cable)

Module-----x 1  
Power Adapter (DC 5V 2A) -----x 1  
Device Mounting-----x 2  
Φ2.9' screw -----x 4  
Φ4.8' screw -----x 2  
Terminal Block -----x 1  
User manual -----x1



**PMC100-1**



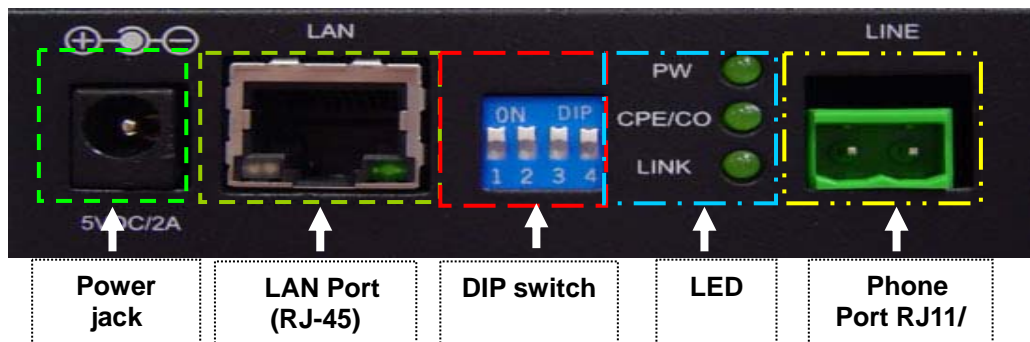
**PMC100-2**



## 1.2 External Architecture

### PMC100-1/ PMC100-2

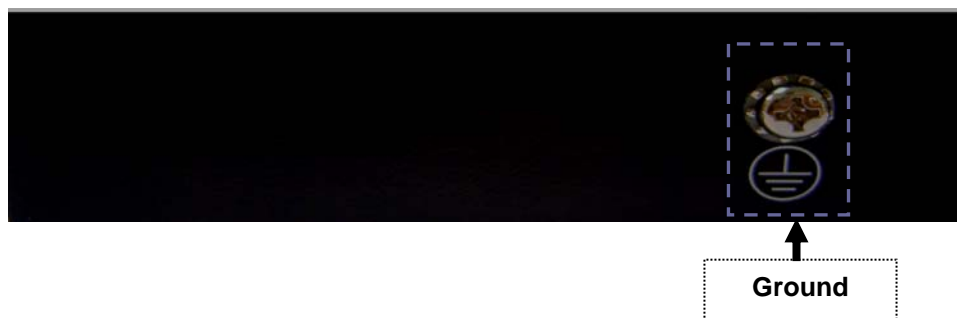
#### Front panel



#### Right side panel



#### Back panel



## 1.3 Size & Weight

### PMC100-1/ PMC100-2

Dimension: 126 (W) x 95 (D) x 30(H) (mm)

Weight: Approx 311± 2g

Material: metal



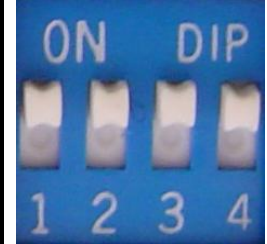
## 1.4 Connectors and Switches

### (1) Power Input

PMC100-1/ PMC100-2 single 5V - 1A adapter

**CAUTION!** Be sure to follow the specified power requirement to avoid damaging the equipment.

### (2) Dip Switch Settings

	DIP Switch #	Function	ON Position	OFF Position
	1	Master/Slave	CPE	CO
	2	Transmission	Fast Mode	Interleave mode
	3	Rate Limit	No Limit	Limited
	4	SNR	6 dB	9 dB

#### > DIP 1 : CO, CPE switch

CO: PMC module acts as Central Office (CO) side.

CPE: PMC module acts as Customer Premises Equipment (APE) side.

#### > DIP2: Impulse noise protection

Interleave mode: Provides communication protection for up to 250ms impulse noise with latency of less than 6 ms.

Fast mode: Direct data transmission with latency of less than 1ms.

#### > DIP 3: Rate limit control

Limited: Line rate limited to 50/20 Mbps.

No limit: Provides up to 100Mbps/60Mbps line rate in short line.

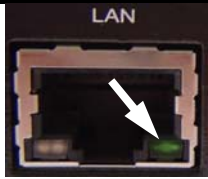
#### > DIP 4: General protection

9dB: Better channel noise protection with SNR of up to 9 dB.

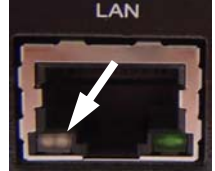
6dB: Original channel noise protection with SNR of 6 dB SNR.

### (3) LED Indicators


#### > LAN Port (RJ-45) bottom right LED status

	LED Status	Function
	Off	Off-Line
	Blinking	Transmitting data
	Lights On	Idle

#### > LAN Port (RJ-45) bottom left LED status

	<b>LED Status</b>	Bandwidth Speed
	<b>Off</b>	Full-Duplex 100Mbps
	<b>Lights On</b>	Half-Duplex 10Mbps

> Front Panel LED status

	<b>LED Position</b>	OFF	Blinking	Lights On
	<b>Top (PW)</b>	Power Off	Don't care	Power On
	<b>Middle (CPE/CO)</b>	CO Mode	Don't care	CPE mode
	<b>Bottom (LINK)</b>	Don't care	Training (handshaking)	Slave & Master successfully connected

## 1.5 Product Configuration

Model Number	Power Supply	Interface	Special Feature	Ideal Locations of Application
PMC100-1	Max. 4.2W 5V DC	RJ-11 / 2-Wire Terminal Block	Vast distances / High bandwidth applications	Long span of bridges / roads / remotes areas
PMC100-2		BNC	Upgrades analog camera to IP camera	Airport / neighborhood / factory / museum

## **2 Introduction**

The PMC (Media Converter, hereinafter called PMC100-1/ PMC100-2) modules which include models that utilize new built-in IP camera device or are capable of upgrading analog camera into IP camera, are ideal devices for centralized surveillance and control. Furthermore, its installation cost is cut to minimum due to reduced installation man-hour and cable/wiring requirements. Through splitter, the PMC modules can be connected to the security network through existing coaxial cables or telephone wirings. PMC modules are also capable of extending its surveillance capability to about 1.5 kilometer from control center through a single Ethernet port (RJ-45) and an RJ-11 or wire terminal block port.

PMC modules are plug-n-play as they do not require software. For long range connections, the modules offer up to 100/60 Mbps transition bandwidth for the distance of within 300 meters and 25/5 Mbps for 1.6 kilometers using existing telephone line at ultra-high performance. Being a plug-n-play device, it provides minimum installation time as well as minimum expense by allowing video streaming and data sharing with existing telephone twisted-pair or coaxial cable without interference.

With its ultra-high performance, the PMC modules are capable of transmitting high definition images; such as High Definition Television (HDTV). This makes the device most suitable for hotel/motel rooms TV network application. PMC modules also support Ethernet Bridge and switching functions and are compatible with optical fiber device.

In suppressing radio interference in tunnel or elevator, as well as in long distance surveillance in farmlands or of bridges across bays, the PMC modules are capable of meeting these challenges as long as telephone line or cable networks already exist in these locations. Furthermore, the modules are also equipped with RS485 interfaces for Emergency/Security Control application.

Lastly, PMC modules feature the Remote Power Feeding (RPF) capability that enables the device to transmit and provide power over telephone lines. This is an ideal option for applying surveillance network in remote areas where power source is not available.

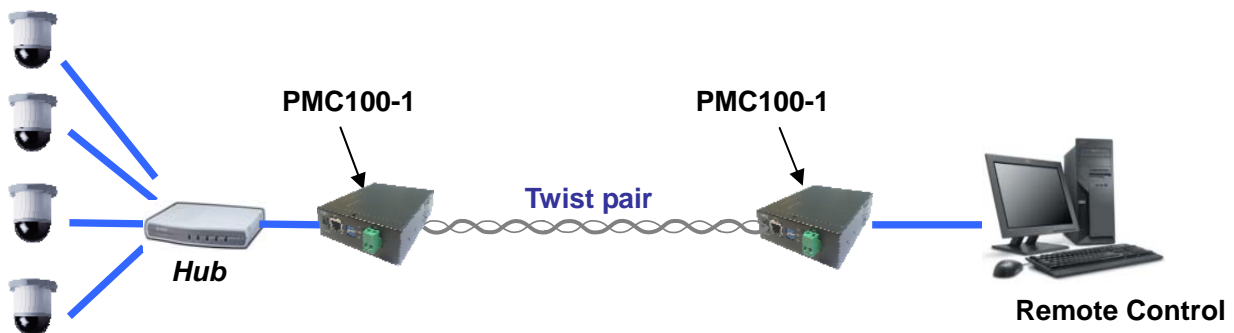
### **3 Unique Features**

- No new wiring network required: Uses existing phone lines /coaxial cables
- Fast Upgrade: Upgrade analog camera to IP camera.
- Long distance transmission: Up to 100/60 Mbps transmission bandwidth within 300m without interference.
- Support multi-cameras at the same time: Support Twenty-five cameras at the same time within 200m in sufficient bandwidth.
- Easy to Install: Plug-n-play device, no software installation required
- Auto-detect & adapts itself with environment: Can readjust itself to adapt with complicated wiring environment, such as elevator or tunnel.
- Cost saving: Saves material and labor cost due no new wiring required. Hence no wiring installation man-hour required.

## 4 Application Case Examples

### 4.1 Remote Transmission Solution (PMC100-1)

- ✓ *Video transmission distance up to 1500m*
- ✓ *Transmit bandwidth: 100Mbps , live video*
- ✓ *long distance transmission without adding extra Hub/Switch*



### 4.2 Upgrade Analog Camera to IP Camera (PMC100-2)

**> Objective:**

Upgrade analog camera to IP camera with PMC100-2 module using existing coaxial cable line.

**> Location:**

ELAN Microelectronics Corp building -1st Floor

**> Network Architecture:**

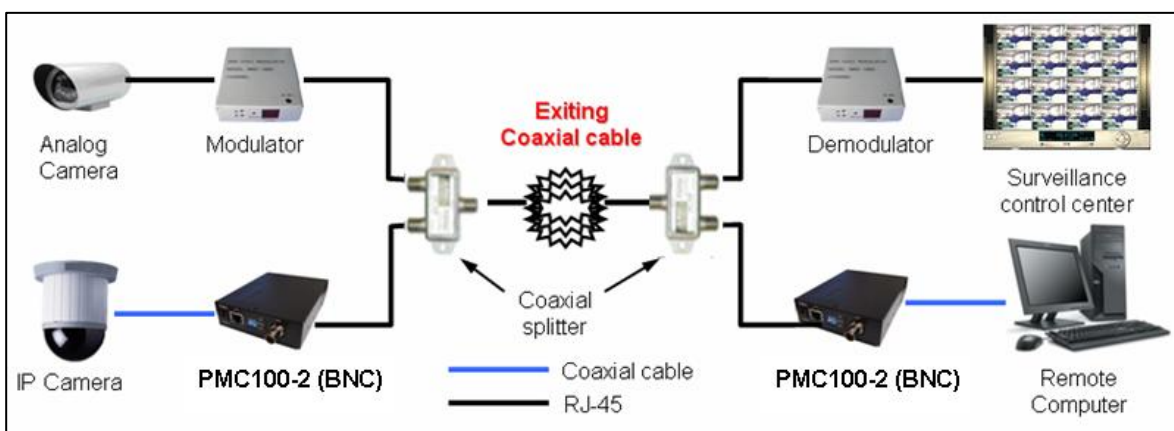


Figure2. Example PMC100-2 Network Architecture

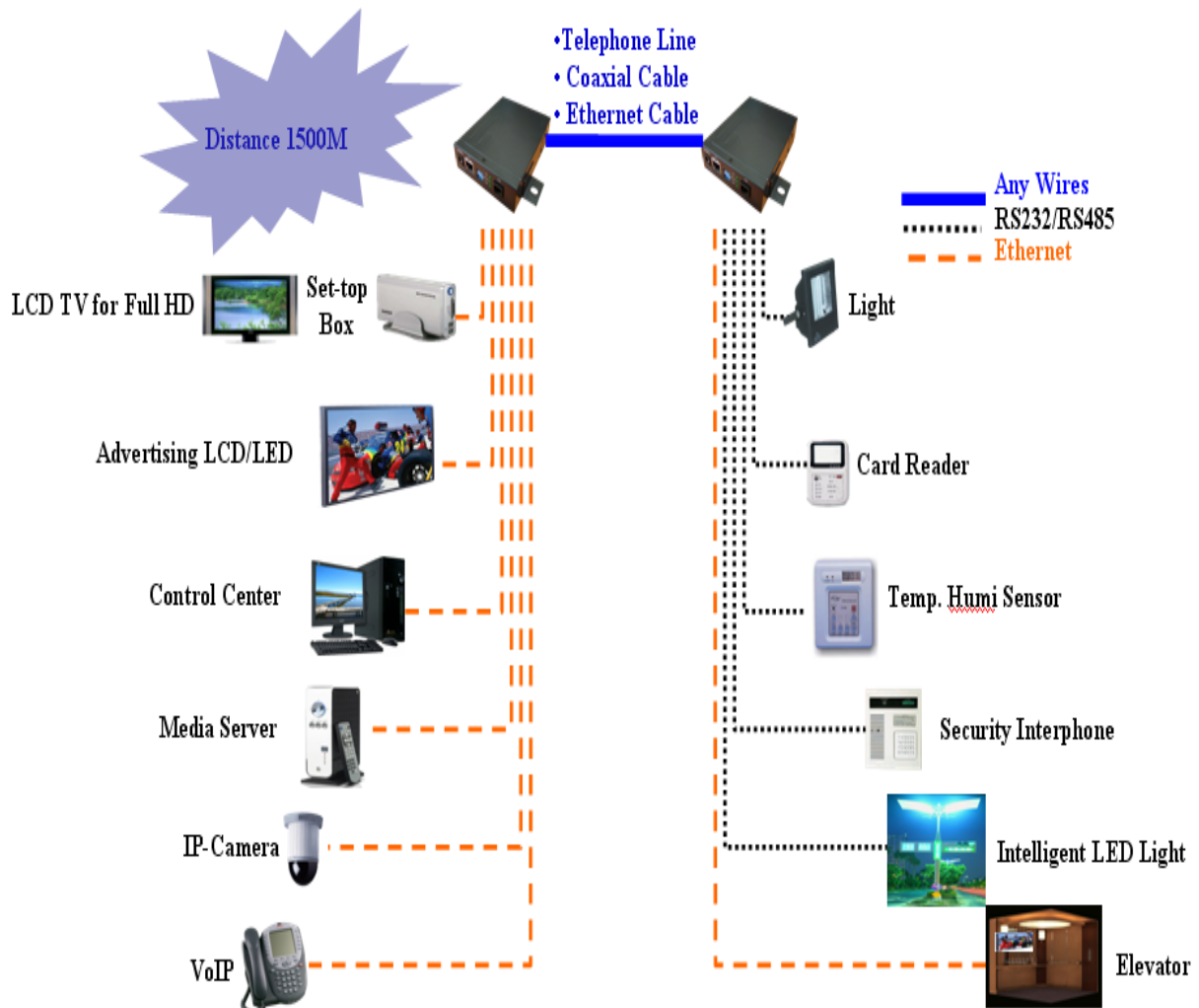
This case shows user installing a new surveillance IP camera using the existing coaxial cable which is connected and used by an analog camera. Therefore, no fresh wiring is involved and cost down is achieved

As user wants to add a new IP camera in addition to the existed analog camera, it is therefore necessary to use a coaxial splitter device. Furthermore, user must add a modulator device between analog cameras and coaxial splitter, and add a demodulator device between coaxial splitter and surveillance center device. If user wants to add more new IP cameras, it only needs to install a switch hub device between IP cameras and PMC100-2.

**> Theory:**

IP camera delivers image data through RJ-45 line. Analog camera delivers image data through coaxial cable line. We use modulator/demodulator devices to separate a high frequency or low frequency from the same frequency band.

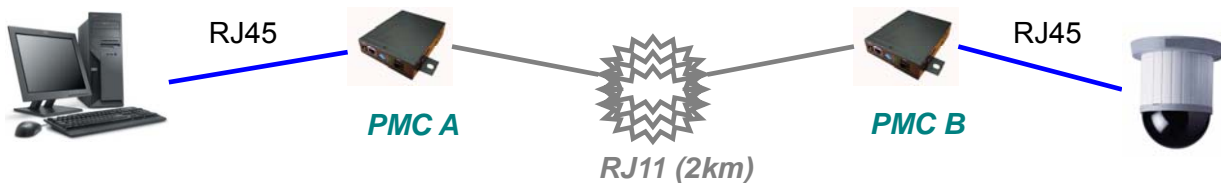
## 5 Integrating Other Products with PMC



## 6 Q&A

### Q1. How to select CO side and CPE side mode PMC?

A1. Referring to the figure below, the PMC B module (nearest to IP camera) is the CO side and PMC A module (nearest to control center) is the CPE side for valid operation bandwidth.



### Q2. How to identify fast and interleaved mode?

A2. Fast mode guarantees a minimum end to end latency of less than 1 ms. Interleaved mode provides protection from any impulse noise with duration of less than 250  $\mu$ s. Interleaved mode has a maximum end to end latency of 10 ms. Interleaved mode is the default mode.

### Q3. How to select target data rate and target SNR margin?

A3. User can select fixed SNR margin (9 dB) or fixed target data rate. When fixed SNR margin is selected, the systems will maintain the SNR margin at 9 dB across all usable loop length. When fixed target data rate is selected, the system will lock the data rate at 50Mbps/30Mbps whenever the calculated SNR margin is higher than 9 dB. This provides the best system stability and is the default mode.

### Q4. Why PMC modules cannot link each other after training?

- A4. 1) A pair of PMC modules should consist of a CO side mode module and a CPE side mode module. They cannot be of the same mode modules.  
2) RJ-11 jack and connector may have loose contact.  
3) The distance between 2 PMC modules should not exceed 1.5Km.

Appendix

**PMC100-1 / PMC100-2 Specifications**

Model Name	PMC100-1	PMC100-2
Dimension	126(W)*95(D)*30(H)(mm)	126(W)*95(D)*30(H)(mm)
Weight	311± 5g	311± 5g
LED Indicators	Green-PW for power Green-CPE/CO Green-Link for data link	
Power Consumption	Max. 4.2W 5V 2A DC	Max. 4.2W 5V 2A DC
Ethernet	10/100	10/100
I/O	Terminal block for phone line / RJ-45	BNC 75 ohm connector / RJ-45
Transmission rate and distance	94Mbps/200m	94Mbps/200m
Features	Long Distance 2.High BW	1.Analogue cam Upgrade
Application	Road/Bridge	Airport/society/ Community/museum