Integrating G.hn and DirecTV™ on Single Coax to Each Unit

GAM-24-C

G1001-C

Leveraging the existing coax infrastructure to deliver Gigabit services with the Positron G.hn Access Multiplexer (GAM) is a very efficient and cost effective method to extend Fiber services to each door of an MDU building. Allowing seamless and transparent co-existence of satellite-based TV services such as DirecTV™ on the same coax infrastructure further increases the value and quality of the services offered to subscribers and their overall Quality of Experience (QoE).

About G.hn

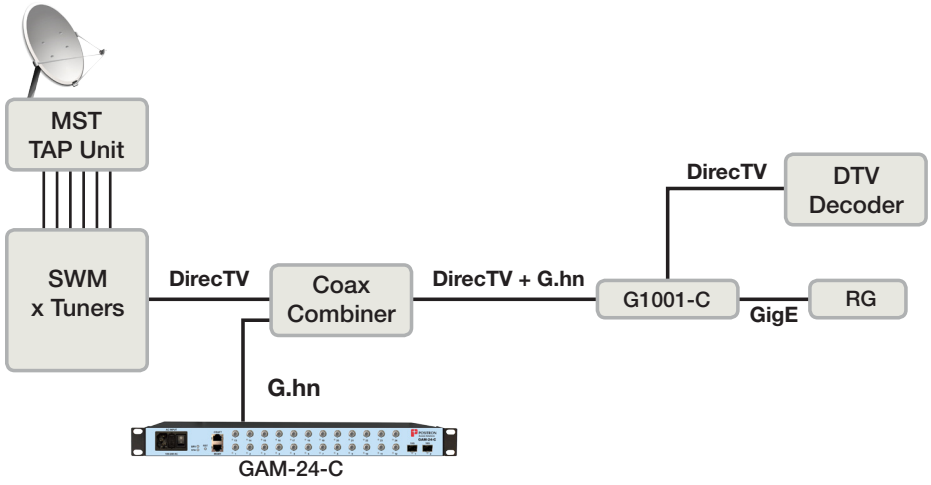
The ITU-T G.9960 G.hn Wave-2 standard is designed to leverage the existing Coax, Telephone, UTP, CAT-3 or CAT-5/5e wiring to deliver a Gigabit Internet service to each subscriber without the complexity and delays associated with in-building fiber installation. G.hn is increasingly becoming the preferred Access Technology for operators looking to simplify their access network and backend infrastructure with an Ethernet-like technology that is highly scalable. With G.hn, operators deliver advanced services such as Gigabit High Speed Residential Internet and 4K IPTV without the high capital and operational expenses associated with a fiber retrofit. Each G.hn subscriber port supports up to 1.7 Gbps of dynamically allocated bandwidth for near symmetrical Gigabit services over existing coaxial cabling.

Integrating G.hn and DirecTV on a Single Coax to Each Apartment

DirecTV has created a very efficient technique to share a single set of satellite dishes to provide TV service to multiple units in an MDU over a shared coaxial cable infrastructure. The Single Wire Multiswitch (SWM) solution is proven and widely in use in MDUs of all sizes.

The spectrum used by G.hn does not overlap with the spectrum used by DirecTV allowing for seamless sharing of the coaxial infrastructure over a single Coax cable entering each apartment. **The connectivity between the SWM and the set top box of the subscriber operates as usual in the 2.1-2.5 MHz range and the video content uses 100 MHz per channel in the 950-2150 MHz range.** Neither of these spectrum range overlap with a G.hn signal on the same coaxial cable. There is therefore no need to “notch” the G.hn signal, this co-existence is supported with the default G.hn settings of the GAM.

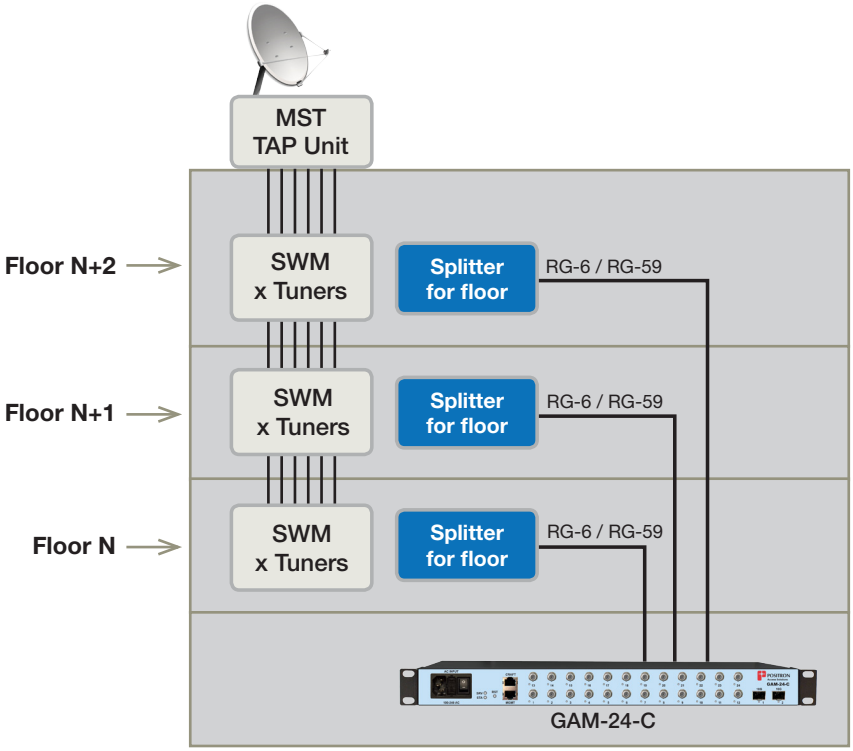
All it takes is to use a standard 2:1 coaxial diplexer to merge the G.hn and the DirecTV output of the SWM onto the coaxial cable entering each unit. This high-level drawing illustrates how to connect the Positron GAM port(s) to each port of the SWM used for the DIRECTV feed.



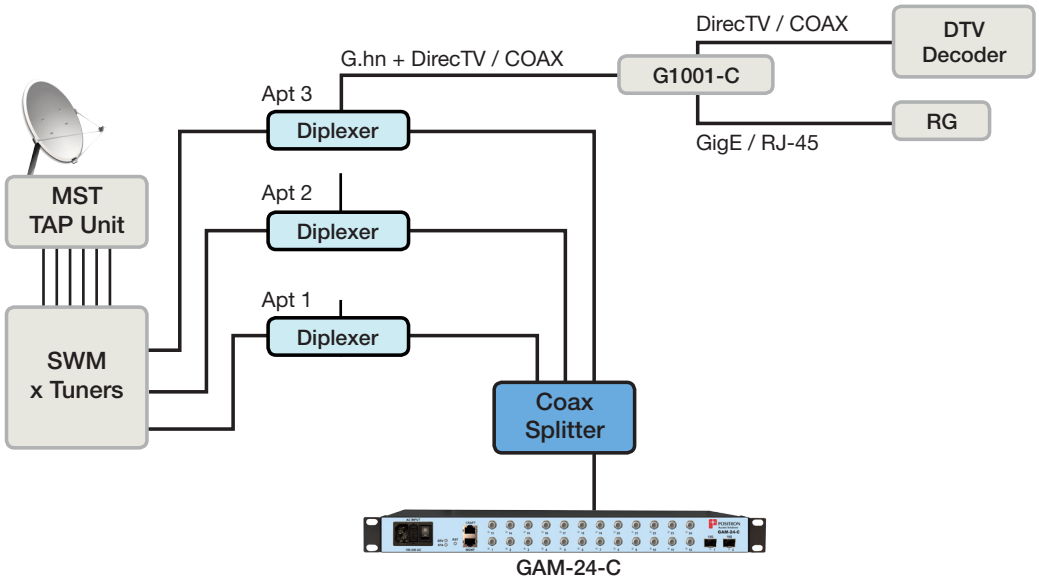
Since each G.hn coax port of the GAM supports up to 16 simultaneous subscribers, this makes for a very cost effective solution.

Real-life Deployment

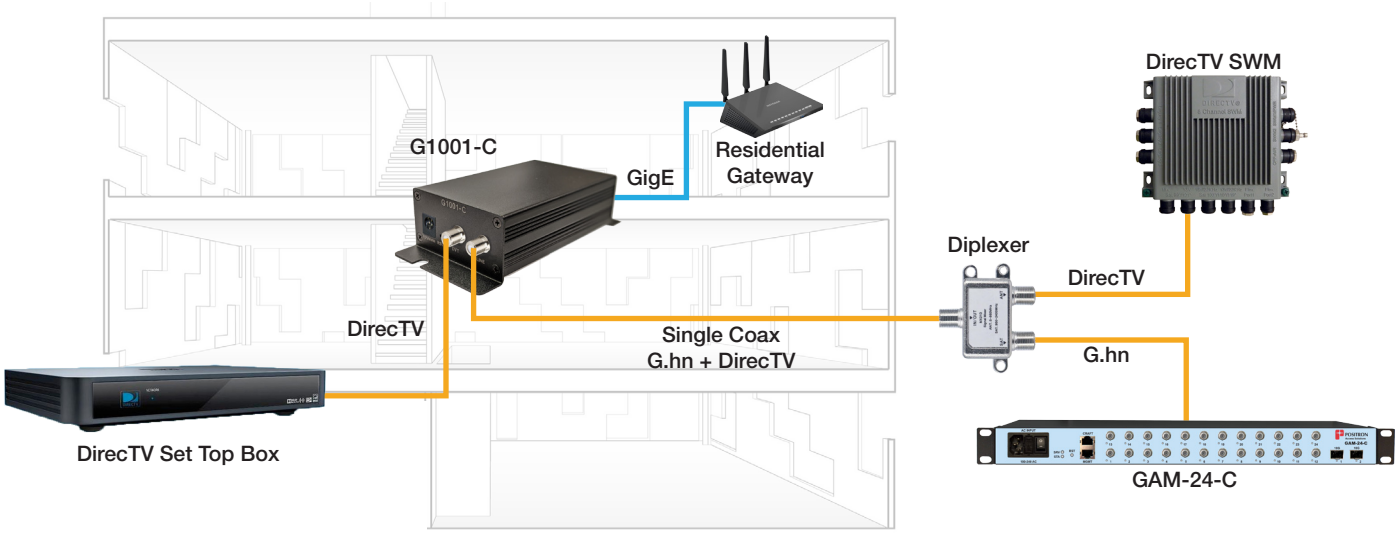
Operators that have installed the GAM solution in conjunction with the DirecTV SWM technology typically serve each floor (with up to 16 units) from a dedicated Coax cable that then terminates into a standard coax splitter (up to 1:16).



A standard coaxial diplexer (2:1 diplexer or combiner) then combines the output ports of the splitter (with the G.hn signal) to the output of the SWM (DirecTV signal) onto the single coaxial cable entering the apartment (unit) of each subscriber.



This single coaxial cable connects to the G1001-C in each unit. The G1001-C has two (2) F-type coaxial ports. The rightmost one connects to the coaxial cable entering the unit that carries the combined G.hn + DirecTV signal. The G1001-C then extracts the G.hn signal and passes the Ethernet traffic onto the Gigabit Ethernet port (RJ-45) that connects to the Residential Gateway (RG). The second Coax connector of the G1000-C operates as a Coax splitter and connects to the DirecTV set-top box.



Ordering Part Numbers

Part Number	Description
GAM-12-C	12 port G.hn Access Multiplexer (GAM) for use over Coaxial cable (F-Type connector)
GAM-24-C	24 port G.hn Access Multiplexer (GAM) for use over Coaxial cable (F-Type connector)
Managed G.hn Ethernet Bridge Devices	
G1001-C	G.hn Wave-2 to Ethernet Bridge over Coax G.hn port (F-type male connector) CATV port (F-type male connector) One 10/100/1000BaseT RJ45 port