secure

Broadcast – HD-VLC Solutions

HD Surveillance Selector Guide

Semtech is designing the future of HD surveillance with highly integrated products, enabling all-digital HD video surveillance transmission with industry leading cable reach performance and the highest image fidelity.

HD VLC™

SEMTECH

HDVLC™

The Future of HD Surveillance

The High-Definition Visually Lossless CODEC (HD-VLC™) has been specifically developed to allow both 720p and 1080p high-definition video to be transmitted at lower data rates over conventional CCTV coaxial cables. Combined with Semtech's industry-leading cable equalizer and CDR technology, cable distances can be extended up to four times the reach of existing HD-SDI and HDcctv 1.0 products, and up to two times the reach of other VLC-based products.

Semtech's next generation of high-performance, all-digital HD video connectivity solutions for surveillance with integrated HD-VLC provide unprecedented levels of cable reach performance and enable long-distance transmission of high quality HD digital video.

Applications

- HD video surveillance cameras
- Digital Video Recorders (DVR)
- HD monitors & displays
- Video repeaters
- Cable extenders

CABLE REACH COMPARISON

Cable Type	HD-VLC™ 270Mbps	HD-SDI 1.485Gbps
Belden 1694A	700m	230m
Belden 543945	550m	150m
KW-Link SYV 75-5	500m	140m
Canare L-3C2V	300m	100m
KW-Link SYV 75-3	300m	80m
Cat-5e/6 UTP	150m	–

GV7700 HD-VLC™ TRANSMITTER

The GV7700 is a serial digital video transmitter for High-Definition component video. With integrated cable driving technology, the GV7700 is capable of transmitting HD video at a compressed 270Mbps and 540Mbps, or uncompressed video at 1.485Gbps and 2.97Gbps over 75Ω coaxial cable, or differentially over 100Ω twisted pair cable.

The GV7700 integrates the HD-VLC technology, which was developed specifically to reduce the transmission data rate of HD video over both coaxial and unshielded twisted pair (UTP) cable. This is achieved by encoding the HD video, normally transmitted at a serial data rate of 1.485Gbps or 2.97Gbps, to the same rate as Standard Definition (SD) video at 270Mbps or 540Mbps serial date rate, respectively.

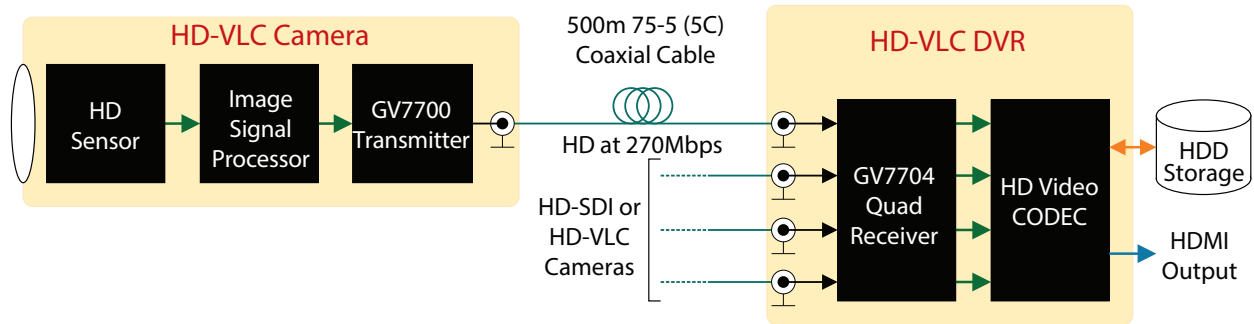| Data Rate (Mbps)	Downstream Data Insert	Downstream Audio Insert	Max Output Jitter (ps)	BT.1120 Bus Width	HD-VLC Encoder	Temp Range (°C)	Power (mW)	Package
270, 540 1485, 2970	Yes	4 channels	77	8/10 or 16/20 bit	Yes	-20 to +85	180	7x7mm 84-pin Dual Row QFN

GV7704 QUAD HD-VLC RECEIVER

The GV7704 is a quad channel serial digital video receiver for High-Definition component video. With integrated high-performance cable equalizer technology, the GV7704 is capable of receiving compressed video at 270Mbps and 540Mbps, or uncompressed video at 1.485Gbps and 2.97Gbps over 75Ω coaxial cable, or differentially over a 100Ω twisted pair cable.

The GV7704 integrates the HD-VLC technology, which was developed specifically to reduce the transmission data rate of HD video over both coaxial and UTP cable. This is achieved by encoding the HD video, normally transmitted at a serial data rate of 1.485Gbps or 2.97Gbps, to the same rate as SD video at 270Mbps or 540Mbps serial date rate, respectively.
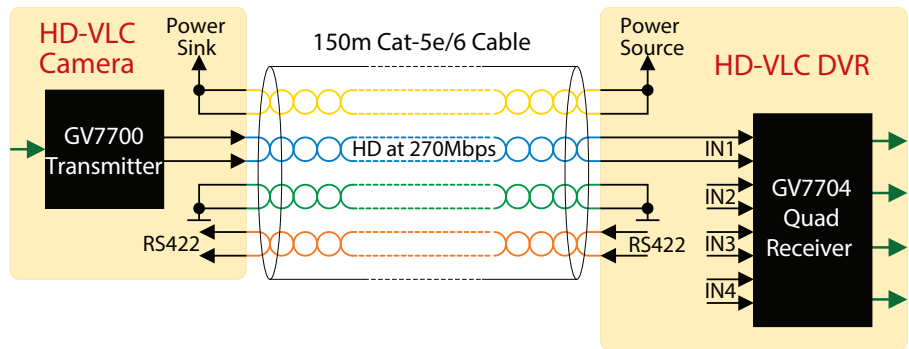
Data Rate (Mbps)	Integrated Equalizer	Downstream Data Extract	Downstream Audio Extract	IJT (UI)	Serial Loop Through	BT.1120 Bus Width	HD-VLC Decoder	Temp Range (°C)	Power (mW)	Package
270, 540 1485, 2970	Yes	Yes	4 channels	0.06 (@270) 0.11 (@1485)	Yes	8/10 bit	Yes	-20 to +85	810*	11x11mm 169-BGA

All four channels active

COAXIAL CABLE APPLICATION: 500m Cable Reach

UTP CABLE APPLICATION: 150m Cable Reach

GV8601 ADAPTIVE CABLE EQUALIZER

The GV8601 is a high-performance cable equalizer designed to equalize and restore signals received over 75Ω coaxial cable. The GV8601 is designed to support HDcctv 1.0, ST 292 and ST 424, and is optimized for performance at 1.485Gbps and 2.97Gbps serial data. The GV8601 features DC restoration to compensate for the DC content of pathological test patterns.

Data Rate (Mbps)	Cable Reach with Belden 543945			Output Jitter (UI)	Output Coupling	Temp Range (°C)	Power (mW)	Package
	3G	HD	SD					
270, 1485, 2970	100m	150m	330m	0.2	2.5/3.3V	-40 to +85	195	16 QFN

GV8500 CABLE DRIVER

The GV8500 is a high-performance cable driver designed to drive one or two 75Ω coaxial cables. The GV8500 can drive data rates up to 2.97Gbps and provides two selectable slew rates in order to achieve compliance to HDcctv 1.0, ST 292 at 1.485Gbps, ST 424 at 2.970Gbps, and ST 259 at 270Mbps (used for HD-VLC).

Data Rate (Mbps)	Single Ended Outputs	Output Jitter (ps)	Adjustable Slew Rate	Output Amplitude Adjust	Temp Range (°C)	Power (mW)	Package
270, 1485, 2970	2	<22	Yes	Yes	0 to +70*	168	16 QFN

* The GV8500 been characterized to meet typical conditions over the -40°C to +85°C extended temperature range.

SEMTECH CORPORATION

Semtech Corporation is a leading supplier of high performance analog, mixed-signal semiconductors and advanced algorithms for high-end consumer, enterprise computing, communications, and industrial equipment. Semtech, publicly traded since 1967, is listed on the Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries.

Semtech is dedicated to providing proprietary platforms, differentiated by innovation, size, efficiency, performance, and reach. Our solutions are used in some of the most innovative systems and products in the fastest growing markets today. These markets include smartphones, LCD TVs, notebooks, tablets, smart grid, automotive, automatic meter reading, medical, wireless infrastructure, PON, Internet of Things, optical transport, and datacenters. More than 5,000 customers worldwide rely on our diverse product portfolio and world class technology roadmap for solutions in low-power wireless communications, optical data transport, video broadcasting, power management, circuit protection, touch sensing, and more, making Semtech one of the most balanced semiconductor companies in the industry.

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