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.
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

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

**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.

**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.

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*All four channels active*
**COAXIAL CABLE APPLICATION:** 500m Cable Reach

![Diagram of coaxial cable application](image)

**UPT CABLE APPLICATION:** 150m Cable Reach

![Diagram of UTP cable application](image)

**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.

<table>
<thead>
<tr>
<th>Data Rate (Mbps)</th>
<th>Cable Reach with Belden 543945</th>
<th>Output Jitter (UI)</th>
<th>Output Coupling</th>
<th>Temp Range (ºC)</th>
<th>Power (mW)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>270, 1485, 2970</td>
<td>100m 150m 330m</td>
<td>0.2</td>
<td>2.5/3.3V</td>
<td>-40 to +85</td>
<td>195</td>
<td>16 QFN</td>
</tr>
</tbody>
</table>

**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 2.97Gbps, and ST 259 at 270Mbps (used for HD-VLC).

<table>
<thead>
<tr>
<th>Data Rate (Mbps)</th>
<th>Single Ended Outputs</th>
<th>Output Jitter (ps)</th>
<th>Adjustable Slew Rate</th>
<th>Output Amplitude Adjust</th>
<th>Temp Range (ºC)</th>
<th>Power (mW)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>270, 1485, 2970</td>
<td>2</td>
<td>&lt;22</td>
<td>Yes</td>
<td>Yes</td>
<td>0 to +70*</td>
<td>168</td>
<td>16 QFN</td>
</tr>
</tbody>
</table>

* 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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