Open Transport Network (OTN)

**MPEG INTERFACE CARD**

**Introduction**

The OTN concept allows to handle nearly all existing communication standards for voice, data, LAN and video.

The MPEG video interface card is only one of the many interfaces presently available for OTN. For more information and other data sheets, contact the address overleaf.

**Description**

The MPEG cards are used to transmit 4 PAL or NTSC video signals via OTN. Analog CVBS video signals are digitized and compressed, transmitted to another or the same node and decompressed and converted to an analog PAL or NTSC signal. The same card can be used for both input and output.

**Features**

- Transmit 4 PAL or NTSC CVBS video signals via OTN
- Separate video codec for every port
- Up to full resolution (D1)
- Based on MPEG2 or MPEG4 compression algorithm
- Bandwidth in OTN configurable
- RS422/232 port provided for camera control (PTZ), remote matrix control...
- Switching of video connections on OTN
- Extensive OSD features
- For OTN-150/600 and OTN-X3M networks
All video cards provide high-quality video using the large bandwidth that OTN offers.

The MPEG boards offer a higher compression ratio than the VID4E-IN and VID4E-OUT (which use M-JPEG coding), allowing an even higher number of video connections to be transmitted through OTN. Depending on the application, the user may opt for a low latency or a low bandwidth mode.

**Operation**

Both in point-to-point and multi-drop configurations, the video interface cards provide fixed or switched connections between inputs and outputs.

Bandwidth for fixed or switched video applications is allocated by the OMS (OTN Management System).

The bandwidth per video connection can be configured from 1 Mbps to 12 Mbps, (15 Mbps in OTN-X3M) depending on the resolution and field rate required; 4 Mbps is adequate for most applications.

A video management system, which can either be the OTN VENUS software or an existing Video or traffic Management System (VMS), controls the actual switching of the video channels. The OVS translates commands from the VMS into OTN switching commands.

All MPEG cards have 4 video inputs, each with their own codecs, which can transmit simultaneously. As such, all 4 video inputs are simultaneously available.

The MPEG card can also be used as output board with 4 independent output circuits.

In OTN-X3M networks, the MPEG card can be connected to the MVIDIP card to provide video-over-IP streaming capability.

One RS422/RS232 control port is provided on board for e.g. camera control.

The compression algorithm used is MPEG2 or MPEG4.

**Applications**

The MPEG-card is mainly used in large video systems in which a high number of video channels have to be transmitted through OTN.

**Video surveillance**

In some cases, hundreds of cameras must be connected to a limited number of video monitors in one or more control centers. One or more operators are able to switch quickly from one camera picture to that of another camera. Cameras may have control inputs for Pan, Tilt and Zoom (PTZ) functions. The control data for the remote control of these PTZ units can be transported via the control ports on the MPEG cards.

**Video distribution**

In some environments, video is to be distributed to monitors in order to make information available to the public (e.g. in light rail or metro systems), e.g. for Passenger Information Systems in which departure/arrival time information is distributed. Another possible application is the distribution of advertising messages or commercials.
### Specifications

#### CE marking
- EMC directive 2004/108/EC
- LVD directive 2006/95/EC

#### Bandwidth (video)
- **Cards**
  - MPEG S30824-Q107-X101
  - The MPEG card can be installed in N22, and N215 nodes for OTN-150/600 networks and in the N42, N42C and N415 nodes for OTN-X3M.
  - MPEG cards are compatible with MVIDIP in OTN-X3M.

#### Bandwidth (audio only)
- **Cards**
  - MPEG S30824-Q107-X101
  - The MPEG card can be installed in N22, and N215 nodes for OTN-150/600 networks and in the N42, N42C and N415 nodes for OTN-X3M.
  - MPEG cards are compatible with MVIDIP in OTN-X3M.

#### Latency
- Extra low latency mode available

#### Compression algorithm
- MPEG-2 MP@ML
- MPEG-4 SP@L1,L2 and L3 with extensions to full D1

<table>
<thead>
<tr>
<th>Resolution</th>
<th>PAL (NTSC) H x V</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>704x576(480)</td>
</tr>
<tr>
<td>3/4D1</td>
<td>528x576(480)</td>
</tr>
<tr>
<td>2/3D1</td>
<td>480x576(480)</td>
</tr>
<tr>
<td>1/2D1</td>
<td>352x576(480)</td>
</tr>
<tr>
<td>CIF</td>
<td>352x288(240)</td>
</tr>
<tr>
<td>QCIF</td>
<td>176x144(120)</td>
</tr>
</tbody>
</table>

#### Video standard
- PAL-B/G, NTSC-M
- Composite video (4 inputs or outputs), CVBS, BNC connectors, 75 Ohm coax.

#### Output signal level
- 1Vpp in 75 Ohm

#### Signal to noise ratio
- > 60dB (weighted)

#### Differential gain
- < 5%

#### Differential phase
- < 2.5°

#### Insertion gain variation
- +/- 0.2dB

#### Amplitude vs. frequency characteristics
- Bandwidth 5.5 MHz (typical)

#### Chrominance to luminance gain inequality
- < 7%

#### Chrominance to luminance delay inequality
- < +/-70ns

#### Non-video ports
- 1 port (RS232/RS422) Camera PTZ Control
- 1 port (RS232/RS422) OTN Video Switching

#### Card size
- Double Eurocard 200 x 233.4 mm

#### Weight
- Approx. 425 g

#### Reliability (MTBF)
- at 25°C (77°F) 44.6 Years

### Ordering information

**Cards**
- MPEG S30824-Q107-X101

The MPEG card can be installed in N22, and N215 nodes for OTN-150/600 networks and in the N42, N42C and N415 nodes for OTN-X3M.

**OMS software**
- V4.5 and up

**OVS software**
- V3.1 and up
Specifications subject to change as design improvements are implemented.