

# Piccolo.net HD8R

Eight-input HD-SDI rack-mount low-latency IP video encoder



## At a Glance

- Stream video from 8 Full HD (1080p30) or HD (720p60) HD-SDI cameras over an IP network
- 83ms wire-to-wire latency when used with the Piccolo.net LLD2 decoder
- ONVIF Profile S interface for interoperability with major Video Management Software
- High-quality H.264 encoder, up to 3 encoded streams per camera
- Optional audio modules

## Benefits

### Stream HD video from standard HD-SDI cameras over an IP network

- HD-SDI uses the same coaxial cables as analog and delivers high-definition digital video over at least 100 meters of standard RG59 cable
- HD-SDI is as easy to install and maintain as analog CCTV systems

### 83ms wire-to-wire latency between Piccolo.net encoder and Piccolo.net LLD2 decoder

In the video world, the time lag between the instant a frame is captured and the instant that frame is displayed is called glass-to-glass latency. Research has shown that an operator's ability to accurately perform precision manual tasks or surgical tasks decreases when glass-to-glass latency exceeds a 300 to 500 ms range.

Euresys can now reduce the glass-to-glass latency to less than 100ms in full HD, in specific conditions with a dedicated decoder. Euresys has recently developed a low latency video encoder, designed for remote control of industrial processes in critical or hazardous areas. With the Piccolo.net encoder, operators will be able to control machines, cranes or robots from afar with an improved response time, thanks to the advanced technologies implemented to stream full HD video over an IP network.

### High-quality H.264 encoder with up to three streams per camera

- H.264 is efficient: Up to 40 cameras can stream low-latency video over a Gigabit Ethernet network
- The highest quality HD video can be streamed, viewed, analyzed and stored anywhere on an IP network

### ONVIF Profile S compliance for seamless VMS compatibility

- Exacq [exacqVision]
- Genetec [Omnicast and Security Centre]
- Milestone Systems [XProtect Corporate and Enterprise]
- AxxonSoft [Axxon Smart]

### Easy-to-use local or remote device setup via web pages

### Use a single network port for four cameras, reducing the number of network switches required

## Specifications

### Mechanical

Form Factor	Stand-alone device
Housing	Aluminum housing
Mounting	Short and long brackets included in order to fit all 19-in racks
Dimensions	L 433.20 mm x H 43.7 mm x D 203 mm without brackets L 482.61 mm x H 43.7 mm x D 203 mm with brackets (Excluding cable connector plugs)
Weight	2.88 kg, 6.35 lb, without option modules and without brackets Add 50 g, 0.11 lb, for long brackets Add 100 g, 0.22 lb, for Cooling module option Add 20 g, 0.044 lb, for each Audio Module option

### Camera / video inputs

Interface standard(s)	SDI for HD digital video
Connectors	<ul style="list-style-type: none"> <li>• MODULE A - INPUT1 to INPUT 4: 4x BNC female connectors on the rear panel</li> <li>• MODULE B - INPUT1 to INPUT 4: 4x BNC female connectors on the rear panel</li> </ul>
Formats and standards (HD)	<ul style="list-style-type: none"> <li>• 720p (SMPTE 296M)</li> <li>• 1080p (SMPTE 274M) (progressive scan only)</li> </ul>
Video inputs	2 x 4 HD-SDI (SMPTE 292M) / HDcctv 1.0
Native resolution	<ul style="list-style-type: none"> <li>• 720p: 1280 x 720</li> <li>• 1080p: 1920 x 1080</li> </ul>
Frame rate	<ul style="list-style-type: none"> <li>• 720p: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 fps</li> <li>• 1080p: 23.98, 24, 25, 29.97, 30 fps</li> </ul>
Event reporting	Video signal presence and video format change detected
Video presence indicators	8 green LEDs on front panel
Number of cameras	8

### Audio modules

Specification	<p>Up to four optional audio modules can be fitted inside Pico.net HD8R</p> <ul style="list-style-type: none"> <li>• Audio modules must be ordered with the Pico.net HD8R and are installed in factory</li> <li>• The specifications below apply to one module</li> </ul>
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### Audio inputs

Number of inputs	2
Type	Mono line-level analog input
Sampling rate	Fixed, 48 kHz
Audio format	<ul style="list-style-type: none"> <li>• PCM G.711: mono, 8-bit, 8 kHz, mu-law</li> <li>• Linear PCM: mono, 16-bit, 48 kHz</li> </ul>
Time stamping resolution	11.1 microseconds (90 kHz time clock)

Connectors	<ul style="list-style-type: none"> <li>• MODULE A - AUDIO INPUTS 1 to 4: 4 x TRS 3.5 mm jack socket connectors on the front panel</li> <li>• MODULE B - AUDIO INPUTS 1 to 4: 4 x TRS 3.5 mm jack socket connectors on the front panel</li> </ul>
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## Audio outputs

Number of outputs	2
Type	Mono line-level analog outputs
Audio format	PCM G.711: mono, 8-bit, 8 kHz, mu-law
Time stamping resolution	11.1 microseconds (90 kHz time clock)
Connectors	<ul style="list-style-type: none"> <li>• MODULE A - AUDIO OUTPUTS 1 to 4: 4 x TRS 3.5 mm jack socket connectors on the front panel</li> <li>• MODULE B - AUDIO OUTPUTS 1 to 4: 4 x TRS 3.5 mm jack socket connectors on the front panel</li> </ul>

## On-board video codec

Video encoders	AVC (H.264) Baseline, Main or High profile <ul style="list-style-type: none"> <li>• 2 x 12 H.264 encoders per Picolo.net HD4 device</li> <li>• The cumulated encoding power cannot exceed the equivalent of 12 x 1080p30 video streams encoding</li> </ul>
Number of streams	Up to 3 individually-configurable encoded streams per video input
Video stream control	Frame rate, resolution, bit rate
Bitrate	CBR, VBR
Video streams resolution	<ul style="list-style-type: none"> <li>• 1920 x 1080, Full HD, native for 1080p sources</li> <li>• 1280 x 720, HD720, native for 720p sources</li> <li>• 960 x 540, qHD</li> <li>• 640 x 360, fits within a VGA display</li> <li>• 480 x 270</li> <li>• 320 x 180, fits within a QVGA display</li> <li>• 320 x 240</li> </ul>
MJPEG encoding performance	1 frame per second
Latency	<ul style="list-style-type: none"> <li>• 83 ms wire to wire, with 1080p30 video</li> </ul> (With Picolo.net LLD2 decoder. Time measured from encoder input to decoder output)

## Streaming

Media transport protocol	RTP, RTCP
Media transport control protocol	RTSP for RTP streams TCP for RTSP streams SAP protocol (IETF RFC 2974) for multicast
RTP transport modalities	<ul style="list-style-type: none"> <li>• RTP over UDP Unicast and over UDP Multicast</li> <li>• RTP interleaved in RTSP over HTTP</li> <li>• RTP Transport Media Types</li> <li>• RTP Payload Format for H.264 Video</li> <li>• RTP Payload Format for MJPEG Video</li> </ul>

## Network

LAN interface	2 x Ethernet 10BASE-T/100BASE-TX/1000BASE-T, automatic speed negotiation
LAN connector	2 x RJ45 with link and activity LED indicators
Application layer protocols	DHCP, DNS, HTTP, HTTPS, NTP, RTCP, RTP, RTSP, TLS 1.0, SAP
Transport layer protocols	TCP, UDP
Internet layer protocols	IPv4, ICMP, IGMPv2
IP address allocation methods	DHCP, LLA, Static IP

Number of IP address/MAC address	1
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## User authentication and access policy

HTTP and RTSP authentication	Using the "HTTP Digest Authentication" mechanism
WS authentication	Using the WS-Security "Username Token" mechanism, with the "Password Digest" password type
Web pages	Through login/password dialog box
Access policy	ONVIF 2.2 default policy with four user levels: administrator, operator, user and anonymous

## Encryption mechanisms

Web service	Messages encryption using TLS 1.0
HTTPS web pages	Access encryption using TLS 1.0

## ONVIF or proprietary APIs

ONVIF Profile S 1.0	For interoperability with major Video Management Software
Proprietary web services	For advanced use
Maintenance client interface	To backup and restore configurations, to remotely reboot and upgrade the embedded firmware
Web pages	For easy installation, set up and testing

## System integration

Alarm inputs	2 x 4 non-isolated polarity insensitive inputs for closing contacts or electronic sensor with CMOS digital outputs
Alarm inputs connectors	Removable plugs with push-in terminals
Relay outputs	2 x 4 potential-free normally open contacts
Relay outputs connectors	Removable plugs with push-in terminals
COM	Two bidirectional half-duplex RS-485 COM ports for the control of up to 8 Pelco-D compliant PTZ cameras
COM connector	Removable plug with push-in terminals
Pan/Tilt/Zoom protocol	Pelco D
Watchdog	Yes

## Electrical

Supply voltage	10 to 30 V DC, power supply via external unit
Power connector	2x removable plugs with 2 push-in terminals
Power consumption	30 W typical
Power status	2x "Power OK" green LEDs on rear panel

## Environmental conditions

Operating ambient air temperature	<p>Without Cooling Module option:</p> <ul style="list-style-type: none"><li>• One device alone or at least 2 U gap between devices: 0 to +65 °C, +32 to +149 °F</li><li>• Stack of devices with at least 1 U space in-between: 0 to +55 °C, +32 to +131 °F</li><li>• Stack of 3 devices without space in-between: 0 to +45 °C, +32 to +113 °F</li><li>• Stack of any number of devices without space in-between: 0 to +35 °C, +32 to +95 °F</li></ul> <p>With Cooling Module option:</p> <ul style="list-style-type: none"><li>• Stack of devices with at least 1 U space in-between: 0 to +75 °C, +32 to +167 °F</li><li>• Stack of 3 devices without space in-between: 0 to +75 °C, +32 to +167 °F</li><li>• Stack of any number of devices without space in-between: 0 to +70 °C, +32 to +158 °F</li></ul>
Operating ambient air humidity	10% to 90% RH non-condensing
Storage ambient air temperature	-20 to +70 °C, -4 to +158 °F

Storage ambient air humidity	10% to 90% RH non-condensing
Dissipated power	<ul style="list-style-type: none"> <li>• At 25°C ambient temperature: 102 BTU/h, 30 W (measured with H.264 encoder at full workload)</li> <li>• At maximum operating ambient temperature: 116 BTU/h, 34 W (measured with H.264 encoder at full workload)</li> </ul>

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## Certifications

Electromagnetic - EMC standards	<ul style="list-style-type: none"> <li>• European Council EMC Directive 2004/108/EC</li> <li>• United States FCC rule 47 CFR 15</li> </ul>
EMC - Emission	<ul style="list-style-type: none"> <li>• EN 55022:2010 Class A</li> <li>• FCC 47 CFR 15 Class A</li> </ul>
EMC - Immunity	<ul style="list-style-type: none"> <li>• EN 61000-4-3</li> <li>• EN 61000-4-4</li> <li>• EN 61000-4-5</li> <li>• EN 61000-4-6</li> <li>• EN 61000-4-11</li> </ul>
Flammability	PCB compliant with UL 94 V-0
RoHS	European Union Directive 2011/65/EU (ROHS2)
REACH	European Union Regulation 1907/2006
WEEE	Must be disposed of separately from normal household waste and must be recycled according to local regulations

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## Ordering Information

Product code - Description	<ul style="list-style-type: none"> <li>• 1680 - Picolo.net HD8R</li> </ul>
Optional accessories	<ul style="list-style-type: none"> <li>• 1660 - 1.8 m IEC Power Cable (EUR)</li> <li>• 1661 - 6 ft IEC Power Cable (US)</li> <li>• 1662 - 6 ft IEC Power Cable (UK)</li> </ul>



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