DDF4220HDV Picodome®

Hybrid HD Dome Camera, 1.3-Megapixel, 720p/30, SD (PAL/NTSC), H.264,
Low-Light, Wide Dynamic Range (WDR), PoE (Class 0), Compact Housing, Vandal-resistant (IK10)

The **Picodome® DDF4220HDV** is a **hybrid Wide Dynamic Range (WDR) HD dome camera**.

The camera provides **real-time HD video (720p/30)** using the **H.264** codec, currently, the most advanced standard for **high-efficiency video compression**, and supports **resolutions up to 1.3-megapixel**.
In addition to **HD video over IP**, the **hybrid camera** provides for a simultaneous **analogue SD (PAL/NTSC) video output via BNC (CVBS)**.

The **HD Picodome®** is characterized by its **Wide Dynamic Range (WDR)** and allows you to capture images with highest colour fidelity and superb detail reproduction even in scenes with a wide range of contrast and strong backlighting.
The **excellent low-light performance** also provides for clear and low noise images even in low light conditions.

Besides a comprehensive set of automatic and manual image optimization functions, the camera features many other setting options in order to meet even the most demanding of surveillance conditions.

For the easy alignment of the lens/camera unit, the **HD Picodome®** is equipped with a **PPL ball joint (Push, Point & Lock)**.
At a resolution of 720p, the **Digital Image Shift**[2] function additionally provides for a **subsequent digital fine alignment of the image section**.

Depending on the requirements, the camera can be conventionally supplied with 12 V DC or conveniently operated via **Power over Ethernet** (PoE Class 0, IEEE 802.3af) which allows for an easy, quick and cost-effective cabling and commissioning.

The **vandal-resistant (IK10) HD Picodome®** is available as in-ceiling mount variant or as surface mount variant in an **IP66** rated enclosure.
Both housing variants are characterised by a **highly compact construction** and the **wide range of particularly elegant designs** that are available on request.

Features

- 1/3" 1.3-megapixel CMOS image sensor
- Pure Digital Signal Processing
- Hybrid HD camera – HD video over IP (Ethernet, RJ45) and analogue SD (PAL/NTSC) video output via BNC (CVBS)
- Real-time HD video (720p/30)
- Wide Dynamic Range (WDR)
- Excellent low-light performance
- Monofocal lens (F2.0 / 2.4 mm)
- Resolution video over IP: SD (4CIF PAL/NTSC), HD (720p, SXGA−)
- Resolution analogue video output: SD (4CIF PAL/NTSC)
- Video compression: H.264, MJPEG
- Frame rate up to 30 fps
- Automatic Exposure (AE) preset and frame rate of 50/60 fps at 720p for casino applications optional[1]
- Simultaneous Dual- or Tri-Streaming
- Manual White Balance (MWB)
- Automatic White Balance (ATW, One-Push AWB)
- Automatic Gain Control (AGC)
- Automatic Electronic Shutter (AES)
- Comprehensive set of image optimization functions like brightness, contrast, saturation and sharpness

- Digital Noise Reduction (DNR)
- Three different exposure metering modes: average metering (light information from entire scene), centre-weighted average metering and spot metering
- Privacy Zone Masking (hiding/masking of protected areas)
- Flip function (horizontal, vertical or both)
- Digital Image Shift[2]
- Motion detection[3] with selectable sensitivity
- Alarm notification via DaVid Protocol[3], e-mail and FTP image upload
- Voltage supply with 12 V DC or via PoE (Class 0, IEEE 802.3af)
- Low power consumption (2.9 W typical)
- Two available mounting variants: in-ceiling mount (IM) or surface mount (SM)
- Compact vandal-resistant (IK10) Picodome® housing
- IP66 (surface mount variant)
- Various elegant design variants available on request
- PPL ball joint (Push, Point & Lock for easy alignment)
- ONVIF compliant
- DIN EN 50130-4 compliant

1) Optional license **DLC - Casino Preset and Frame Rate 50/60 fps at 720p** (004717) required. The recording at 50/60 fps is supported by the **DIS-2/M NSU**.
2) Digital Image Shift = Provides digital fine alignment of the image section (only applicable at 720p, vertical alignment by 120 pixels up or down)
3) Function in preparation

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Variants/Accessories/Licences

Variants	
004419.407	**DDF4220HDV-IM Picodome®** Hybrid HD dome camera, 1.3-megapixel, 720p/30, SD (PAL/NTSC), H.264, Low-Light, WDR, megapixel monofocal lens, PoE (Class 0), vandal-resistant (IK10), white, clear bubble, in-ceiling mount variant, F2.0 / 2.4 mm
004420.407	**DDF4220HDV-SM Picodome®** Hybrid HD dome camera, 1.3-megapixel, 720p/30, SD (PAL/NTSC), H.264, Low-Light, WDR, megapixel monofocal lens, PoE (Class 0), vandal-resistant (IK10), white, clear bubble, surface mount variant (IP66), F2.0 / 2.4 mm

Accessories		
001431		**EvC-1** High-Speed Ethernet data transmission via coaxial cable
001678		**Power Supply Unit (110 – 240 V AC -> 12 V DC)** Universal power supply, 110 – 240 V AC to 12 V DC, 850 mA, plug adapter EU/UK/US/AUS

Licences	
004717	**DLC - Casino Preset and Frame Rate 50/60 fps at 720p** [4] License for the use of the Automatic Exposure (AE) preset Casino and the frame rate of 50/60 fps at 720p

[4]   The recording at 50/60 fps is supported by the **DIS-2/M NSU**.

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Specifications

Sensor

Type	1/3" 1.3-megapixel CMOS image sensor
Signal processing	Pure Digital Signal Processing
Image capture	Progressive Scan
Minimum illumination	0.3 lux (F2.0, 50 IRE)
Dynamic range (WDR)	> 115 dB[5]
Signal-to-noise ratio (SNR_{MAX})	43.9 dB

Functions

Hybrid Video	On, Off
WDR (Wide Dynamic Range) mode	Automatic, On, Off
B/W (black-and-white) mode	Automatic (at low light)[6], On, Off
Automatic Electronic Shutter (AES)	1/4(3) – 1/10000 s
Slow Shutter Limit	1/4(3) – 1/30(25) s
Digital Noise Reduction (DNR)	Yes
Automatic Exposure (AE) Presets	Universal, Indoor, Fluorescent, Casino[7]
Exposure metering mode	Average metering (light information from entire scene), centre-weighted average metering, spot metering
Brightness adjustment	Automatic (ALC), Manual
Gain control	Automatic (AGC)
White balance	MWB (Manual): 2500 K – 6500 K, ATW (Auto Tracking White Balance), One-Push AWB (Automatic White Balance)
Privacy Zone Masking	Yes (max. 40% of the entire image)
Flip function	Horizontal, vertical or both
Digital Image Shift[8]	Yes
Motion detection[9] (VMD)	With selectable sensitivity (5 levels)
Alarm notification	Via DaVid Protocol (Dallmeier Video Protocol) to PGuard advance[9], e-mail, FTP image upload
Configuration	Via web browser
Languages	German, English, Spanish, French, Italian

Lens

Type	Megapixel monofocal lens
Format	1/3"
Mount	Board lens (Ø 12 mm thread mount)
Focal length	2.4 mm
Iris	F2.0
Iris control	Fixed iris
Focus control	Fixed focus
MOD (Minimum Object Distance)	0.3 m
Available angles of view[10] (H × V)	Approx. 106° × 80° (4CIF, SXGA−) Approx. 106° × 60° (720p)

Format and Encoding

Video standard	SDTV (PAL/NTSC), HDTV (SMPTE 296M)
Resolution video over IP	SXGA− (1280 × 960), 720p (1280 × 720), 4CIF (PAL: 704 × 576, NTSC: 704 × 480), VGA (640 × 352 / 640 × 480), QCIF (192 × 128)
Resolution analogue SD video	4CIF (PAL: 704 × 576, NTSC: 704 × 480)
Aspect ratio video over IP	4:3 (4CIF, SXGA−), 16:9 (720p)
Aspect ratio analogue SD video	Scale Analog Output -> On: 4:3 (if Encoder 1 resolution: 4CIF, SXGA−), 16:9 Letterbox (if Encoder 1 resolution: 720p) Scale Analog Output -> Off: 4:3 (cropped from centre sensor area)
Video compression	H.264, MJPEG
Frame rate	See tables "Maximum Frame Rates" on page 5.
Video bit rate	0.25 – 10 Mbit/s, CBR (constant bit rate) or VBR (variable bit rate)
Video streaming	Simultaneous Dual- or Tri-Streaming[11] (Note the tables "Available Encoder Combinations" on page 5.)
Transfer format	Progressive (full image)
Live streaming transmission method	Unicast, Multicast

5) According to the sensor manufacturer's specifications
6) Without colour information, or rather in black-and-white mode, the image quality in low light conditions will be much clearer (e.g. less colour noise).
7) Optional license **DLC - Casino Preset and Frame Rate 50/60 fps at 720p** (004717) required. The recording at 50/60 fps is supported by the **DIS-2/M NSU**.
8) Digital Image Shift = Provides digital fine alignment of the image section (only applicable at 720p, vertical alignment by 120 pixels up or down).
9) Function in preparation
10) All specifications ±5%. Minor deviations with lenses may be a result of manufacturing tolerances and do not constitute a defect.
11) Only available with Hybrid Video -> Off

V1.0.5 / 7.1.1.8   2014-12-08   Specifications subject to change without notice. Errors and misprints excepted.   © 2014 Dallmeier electronic

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Specifications (Continuation)

Protocols

Ethernet protocols	IPv4, TCP, UDP, ARP, ICMP, DHCP, NTP, HTTP, RTSP, IGMP V2, FTP, SMTP, RTP, RTCP
SNMP support	Yes

Connections

Video OUT	1× BNC (CVBS, 1.0 $V_{p\text{-}p}$, 75 ohm)
Ethernet	1× RJ45 female connector, 10BASE-T-/100BASE-TX PoE
Power IN	12 V DC

Miscellaneous

Programming interface	Open platform for integration into 3rd party systems using API and ActiveX*
ONVIF compliance	Core Specifications 1.01 & 1.02

Electrical Data

Voltage supply	12 V DC ±10% or PoE (Class 0)
PoE standard	IEEE 802.3af
Power consumption	2.9 W typical (max. 4.0 W)

Mechanical Data

Dimensions	In-ceiling mount variant: approx. Ø 94.6 × H 71.6 mm (Ø 3.72 × H 2.82 inches)
	Surface mount variant: approx. Ø 92.5 × H 65.5 mm (Ø 3.64 × H 2.58 inches)
Weight	In-ceiling mount variant: approx. 450 g (0.99 lb)
	Surface mount variant: approx. 740 g (1.63 lb)
Adjustment	PPL ball joint (Push, Point & Lock for easy alignment)
Colour	White (standard variant)
Bubble	Clear
Vandal-resistant	Yes
IK protection	IK10 protection against external mechanical impacts (up to 20 joules)
IP rating	IP66 (surface mount variant only)

Environmental Conditions

Operating temperature	In-ceiling mount variant (indoor): −20°C to +40°C (−4°F to 104°F)
	Surface mount variant (in- and outdoor): −20°C to +50°C (−4°F to 122°F)
Relative humidity	0% − 90% RH, non-condensing

Approvals/Certifications

Type	CE, FCC, ACA, UVV "Kassen" (DGUV Test), UL, DIN EN 50130-4 compliant

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Available Encoder Combinations

Encoder 1 (H.264)

Encoder 1	Encoder 2	Encoder 3**
H.264	H.264/MJPEG	H.264
SXGA− / − 30 fps	VGA (640 × 480) / − 15 fps	-
720p / − 60 fps[12]	-	-
720p / − 30 fps	VGA (640 × 352) / − 30 fps	-
720p / − 30 fps	VGA (640 × 352) / − 15 fps	QCIF (192 ×128) / − 15 fps
4CIF / − 30 fps	4CIF / − 30 fps	-

Encoder 1 (MJPEG)

Encoder 1	Encoder 2	Encoder 3**
MJPEG	H.264/MJPEG	H.264
SXGA− / − 30 fps	-	-
720p / − 60 fps[12]	-	-
720p / − 30 fps	-	-
4CIF / − 30 fps	-	-

** only available if Encoder 2 -> MJPEG

Maximum Frame Rates

Hybrid Video OFF

Resolution	Encoder 1	Analogue Output
SXGA−	25/30 fps	12.5/15 fps
720p	25/30 fps	25/30 fps
720p	50/60 fps[12]	- ***
4CIF	25/30 fps	25/30 fps

Hybrid Video ON

Resolution	Encoder 1	Analogue Output
SXGA−	12.5/15 fps	25/30 fps
720p	25/30 fps	25/30 fps
720p	50/60 fps[12]	- ***
4CIF	25/30 fps	25/30 fps

*** At 720p/50 (PAL) or 720p/60 (NTSC), no analogue video output and no encoding by Encoder 2 and Encoder 3 is possible
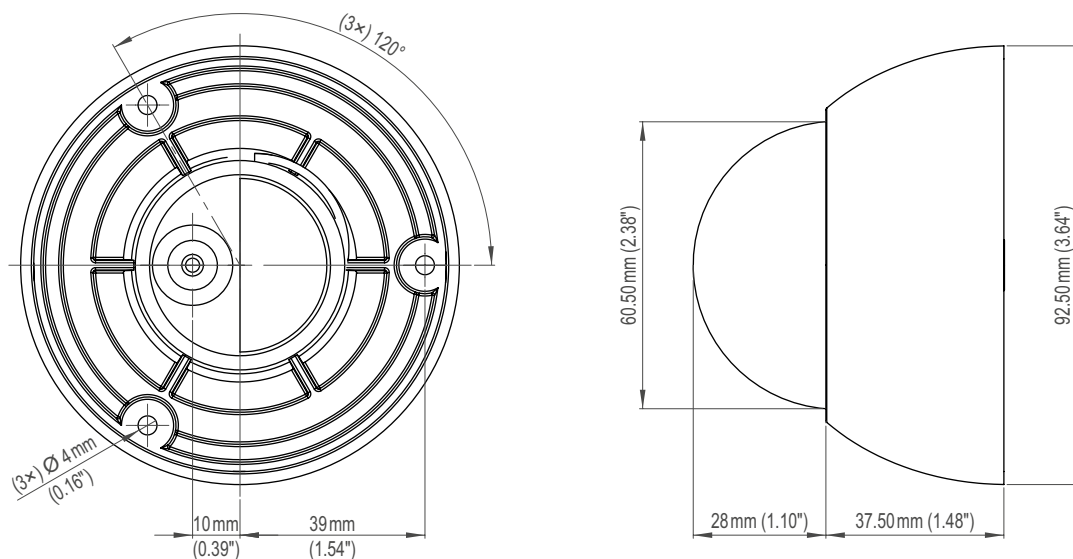
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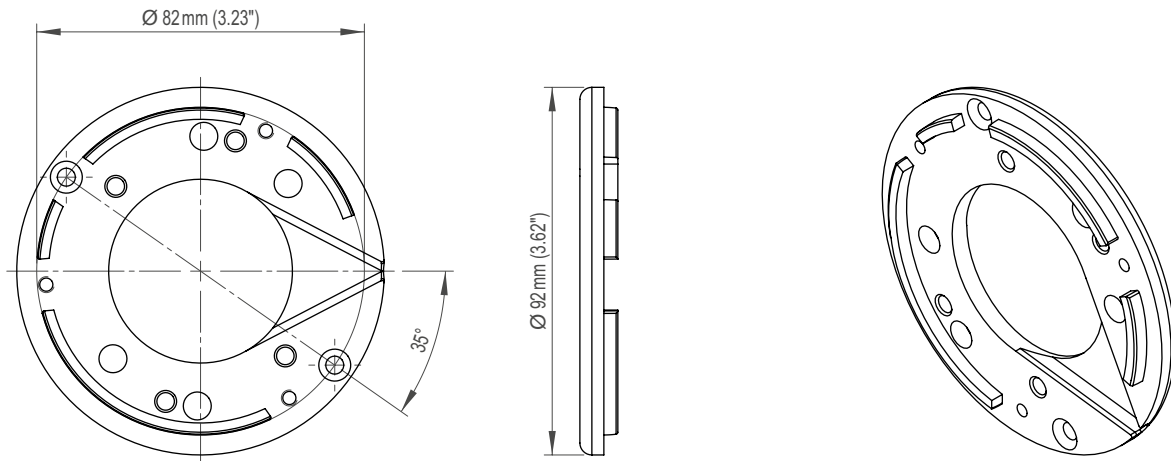
Dimensions
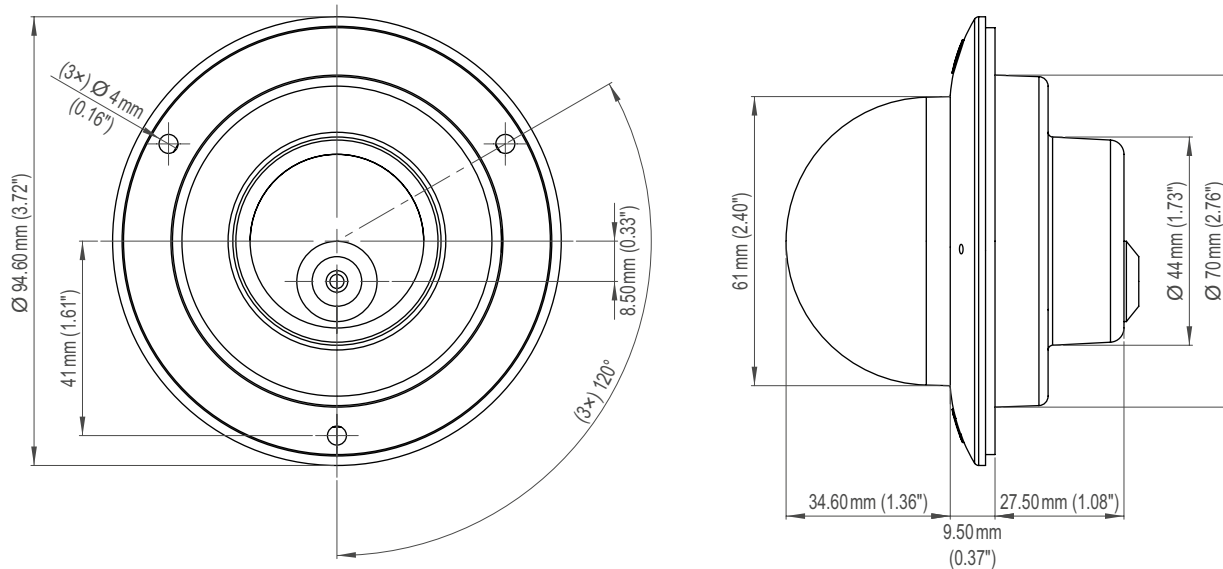
In-ceiling mount variant

Surface mount variant

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Accessories

Ø 82 mm (3.23")

Ø 92 mm (3.62")

35°

Mounting ring for surface mount variant (compatible with flush-mounted sockets according to DIN 49073)