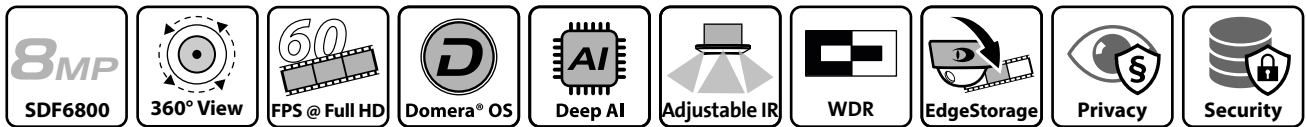# SDF6800DN

**DOMERA®**

Ultra high definition camera, 8 MP, H.265, day/night, WDR, PoE, Deep AI object classification, EdgeAnalytics AI Apps, fisheye lens, 360° panoramic view, motorized fine alignment, variable DOMERA® mounting concept

reddot winner 2022

**ONVIF | MST**

| 8MP SDF6800 | 360° View | 60 FPS @ Full HD | Domera® OS | Deep AI | Adjustable IR | WDR | EdgeStorage | Privacy | Security |

The SDF6800DN is a network camera with a fisheye lens specifically designed for the image sensor, allowing it to capture a complete half-space with a 360° panoramic view. It is offered with a resolution of 8 MP in a vandal-resistant dome housing.

## DOMERA®OS
The cameras are equipped with the hardened Linux operating system DOMERA® OS. In addition to a kernel with long-term support, it offers extensive security functions such as the deactivation of unused ports or the enforcement of strict passwords. In addition, DOMERA® OS supports secure network authentication (IEEE 802.1X) and encrypted data transmission (TLS 1.2/AES-256). All software components are subject to permanent monitoring, maintenance and updating, while the effectiveness of all measures is ensured by regular external penetration tests.

## AI Analysis - Deep AI Object Classification
The camera is equipped with an intensively trained neural network that analyzes the captured images in high resolution and independent of movements in the background (green spaces, water areas, etc.) and reliably classifies defined objects (persons, vehicles, etc.) in real time. The captured data is sent with the video stream to the Dallmeier recording system for evaluation and storage and is available for further processing with the integrated EdgeAnalytics Apps.

## AI Analysis - EdgeAnalytics Apps
The embedded EdgeAnalytics AI apps use the raw data of the Deep AI Object Classification to assess the captured operations according to the specific criteria of various use cases. The Line Crossing App, for example, detects the crossing of a defined line by a relevant object (person, vehicle, etc.) and generates a corresponding message with time and direction of movement. On the other hand, the various counting apps cyclically determine the number of persons or vehicles in a defined area and report when a set threshold value is exceeded. The generated event messages and values complete the raw data already contained in the video stream and can be displayed and evaluated with a Dallmeier client software.

## Motorized Fine Alignment
The camera is equipped with a motor-driven mechanism for precise fine alignment of the image sensor over the network. Remote control is performed via the DOMERA® OS user interface and allows easy adjustment of the horizontal axis to the captured scene. This eliminates the need for subsequent correction while viewing the recordings with Dallmeier client software, thus reducing the workstation load.

## Adjustable IR Illumination
The homogeneous illumination of the IR models is discreetly integrated under the permeable housing cover and can be individually adjusted to the captured scene. The illumination intensity of the five semi-discrete high-power LEDs can be adjusted individually and independently of each other. This means that disruptive side effects, such as reflections from white walls next to the detection area, can be avoided as far as possible. As a result, the camera delivers clear black-and-white images with excellent contrast even in seemingly complete darkness.

## Dewarped Display
The dewarped display of the live image and recordings of an SDF6800DN is supported by every workstation in the SeMSy® Video Management System with a digital PTZ function. In smaller video security systems, the convenient evaluation with the video management software SeMSy® Compact is the ideal option. In addition to a PTZ function, SeMSy® Compact supports the display of a dewarped 360° panoramic view or two 180° views of the half-space.

## Further features
- Horizontal field of view 360°
- Vertical field of view 90°
- Video compression H.264, H.265, MJPEG
- EdgeStorage and memory expansion with SD card
- Ambient light sensor and removable IR cut filter
- Automatic switching of presets for day and night
- Position sensor for automatic orientation (wall, ceiling)
- GDPR-compliant functions for data protection and security
- In-ceiling housing UL 2043 "plenum rated" compliant
- Compatible with ONVIF Profile M, Profile S and Profile T
- Network protocol MQTT supported

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The **AI Motion Detection App** analyzes the entire image content and reliably detects all movements triggered by persons or vehicles. The motion events are sent to the recording system with the video stream. Afterwards, they are available with metadata such as object type, time and position for targeted evaluation with Dallmeier client software.

The **AI Tamper Detection App** is classically used for detecting and reporting attempted tampering with the camera. The app detects a general change in the captured scene, such as typically occurs when the camera is manually rotated or tilted, and immediately issues a corresponding message.

The **AI Loitering Detection App** analyzes the movement of persons detected by the neural networks and evaluates their dwell time in a defined sensitive zone. If the set limit value of the dwell time is exceeded, a corresponding message can be displayed to the operator. At the same time, undesired attendants can be requested to leave the area by outputting a stored audio sequence.

The **AI Intrusion Detection App** allows the definition of protected zones and issues a message as soon as an object intrudes into them. The object type relevant for the message can be defined as, for example, person or vehicle. For targeted operator attention, a pre-zone can be defined for each protected zone, which can be used to escalate the messages.

The **AI Line Crossing App** issues a message as soon as a person or vehicle crosses a virtual line drawn in the image. Uninteresting crossings of the virtual lines, for example by animals, can be effectively excluded. An operator is thus less distracted and can concentrate much better on relevant observations.

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| Camera | | |
|---|---|---|
| | 008355 | **SDF6800DN**<br>Ultra high definition camera, 8 MP, H.265, day/night, Deep AI/VCA, WDR, PoE, DOMERA® in-ceiling housing, design cover black IR translucent[1], fisheye lens F2.8 / 1.6 mm |

| Illumination (series RDF6000DN and RDF5000DN, SDF6800DN) | | |
|---|---|---|
| | 008406 | **DOMERA® Dual Matrix LED Ring**<br>Illumination for DOMERA® in-ceiling housing, five IR LEDs and five white light LEDs, event-controlled switching between IR and white light illumination, individual control of the intensity of individual LEDs or automatic adjustment to the captured scene, recommended for models with 4.5 - 9.7 mm or fisheye lens (only ex factory) |

| Housing cover | | |
|---|---|---|
| | 008529 | **DOMERA® Housing Cover Aluminium Black**<br>Aluminium housing cover for DOMERA® in-ceiling housing, can be combined with DOMERA® Surface Mount Adapter and DOMERA® Wall Bracket, black, cannot be combined with cameras with DOMERA® Dual Matrix LED Ring |
| | 008410 | **DOMERA® Housing Cover Aluminium White**<br>Aluminium housing cover for DOMERA® in-ceiling housing, can be combined with DOMERA® Surface Mount Adapter and DOMERA® Wall Bracket, white, cannot be combined with cameras with DOMERA® Dual Matrix LED Ring |

| Adapter | | |
|---|---|---|
| | 008407 | **DOMERA® Surface Mount Adapter**<br>Adapter for surface mounting a DOMERA® in-ceiling housing, safety rope included, polycarbonate, white |
| | 008209 | **DOMERA® Wall Bracket**<br>Multifunctional bracket for mounting a DOMERA® in-ceiling housing on a wall or pole, compatible with the Mountera® Vandalproof Pole Adapter and the Mountera® Box, safety rope included, aluminum, white |

| Extensions | | |
|---|---|---|
| | 008421 | **DOMERA® Breakout Cable**<br>Breakout cable with 1× Audio IN, 1× Audio OUT with NF amplifier 1.4 W, 2× Contact IN, 2× Contact OUT, 1× power supply (expected to be available as of Q4/2022) |
| | 008670 | **DOMERA® SDF Internal Audio Upgrade Kit**<br>Upgrade kit for extension of a DOMERA® SDF series camera, internal speaker for use as intercom system and event-controlled audio output, NF amplifier 1.4 W included, license DLC - Audio IN/OUT and Intercom (008419) required (ex factory only, expected to be available in 2023) |

| Power supply | | |
|---|---|---|
| | 004316 | **PoE Midspan 30 W**<br>Midspan power supply unit, 1× Ethernet port, 10/100/1000Base-T, 802.3at, 802.3af, 30 W |

1)  Installation without tool, IR transmission 70%, white light transmission 10%

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## Included Support and License Interval

**Camera Support and License Interval Basic**
License for the use of the support services of the Support Level Basic for 60 months,
license for the update of Domera® OS with updates, upgrades and security updates[2] for 12 months,
license for the update of neural networks for object classification for 12 months,
test function of the EdgeAnalytics AI Apps (Essentials) with object classification with a runtime of 30 days,
unlimited license for the use of the VCA function,
bring-in warranty for 24 months

## Optional Support and License Interval

| 008414 | **AI Camera Support and License Interval Premium and Warranty (Total of 60 Months)**<br>License for the use of the support services of the Support Level Premium for 60 months<br>license for the update of Domera® OS with updates, upgrades and security updates[2] for 60 months<br>license for the update of neural networks for object classification for 60 months<br>unlimited license for the use of EdgeAnalytics AI Apps (Essentials) with object classification<br>extension of bring-in warranty to a total of 60 months<br>(ex factory only) |
|---|---|

## Optional Maintenance

| 008416 | **Camera Software Maintenance (Plus 12 Months)**<br>License for the update of Domera® OS with updates, upgrades and security updates[2] for 12 months,<br>license for the update of neural networks for object classification for 12 months. |
|---|---|

## Optional Warranty

| 008417 | **Camera Hardware Warranty (Total of 60 Months)**<br>Extension of bring-in warranty to a total of 60 months |
|---|---|

## Optional Licenses (Functions)

| 008418 | **DLC - EdgeAnalytics AI Apps (Essentials)**<br>Perpetual license for the use of EdgeAnalytics AI Apps (Essentials) with object classification<br>(AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing) |
|---|---|
| 008419 | **DLC - Audio IN/OUT and Intercom**<br>License for the use of the Audio Line IN/OUT interface, audio compression G.711 or AAC,<br>recommended for use as intercom system (additional hardware required) |

2) Security updates for relevant CVE vulnerabilities that become known will be provided (subject to technical feasibility) for the entire runtime of the software maintenance.

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| Sensor | |
|---|---|
| Type | 1/1.7" CMOS |
| Number of sensor pixels | 12 MP |
| Light sensitivity | Models with IR illumination:<br>0 lux (IR LED ON)<br><br>Models without IR illumination:<br>< 0.05 lux (F1.4, AGC ON) |
| Dynamic range | 92 dB |
| Signal to noise ration | > 50 dB |

| Lenses | |
|---|---|
| Type | Fisheye |
| Format / Mount | 1/1.7" Board Lens |
| Focal length | 1.6 mm |
| Iris range | F2.8 |
| Minimum object distance | 0,5 m |
| IR corrected | Yes |
| Horizontal field of view | 360° |
| Vertical field of view | 90° |
| Panoramic view | 360° |

| Format and Encoding | |
|---|---|
| Video standard | SDTV (PAL/NTSC), HDTV (SMPTE 296M, SMPTE 274M) |
| Resolution 1.1 | 8 MP (2880 × 2880) @ 25/30 fps<br>6 MP (2448 × 2448) @ 25/30 fps<br>4 MP (1984 × 1984) @ 25/30 fps |
| Video compression | H.264, H.265, MJPEG |
| Frame rate | Up to 30 fps |
| Video bit rate | 1 – 50 Mbps, constant or variable bit rate with priority setting for image quality[3] |
| Video streaming | Up to 3 streams with different settings simultaneously |
| Audio compression[4] | G.711 (A-LAW, μ-LAW), AAC |
| Audio bit rate[4] | 64 kbps (G.711), 48 – 96 kbps (AAC) |
| Live streaming transmission method | Unicast, Multicast |
| Number of live streams / clients | Up to 5 streams with up to 16 Mbps simultaneously |

[3] Limited to 12 Mbps with EdgeAnalytics active. If the total available bit rate is not sufficient, not the image quality but the number of frames is adjusted.
[4] Optional license for the use of the Audio Line IN and OUT interface required (DLC - Audio Line IN/OUT).

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| Functions | |
|---|---|
| Day/Night switching | Ambient light sensing and removable IR cut filter (ICR), switching threshold level adjustable |
| Black-and-white mode | Automatic (at low light or in night mode), On, Off |
| Automatic Electronic Shutter | 1/1 – 1/8000 s |
| Slow Shutter Limit | 1/1 – 1/1000 s |
| Digital flip function | Horizontal, vertical or both axes |
| Digital Noise Reduction | 3D-DNR (adjustable by 10 levels) |
| Exposure presets | Universal, Indoor, Fluorescent, Casino, Low-Light, User-Defined (with automatic day/night switching) |
| Exposure compensation | -2 EV (Exposure Value) to + 2 EV (adjustable by 200 levels) |
| Exposure metering | Average metering (light information from entire scene), center-weighted average metering, spot metering |
| Brightness adjustment | Automatic (ALC), Manual |
| Gain control | Automatic (AGC) with adjustable Gain Limit |
| White balance | Auto: ATW (Auto Tracking White Balance), One-Push AWB (Automatic White Balance) <br> Fixed: 2800K, 4000K, 5000K, 6500K and 7500K |
| Privacy Zone Masking | Hiding/masking of up to 16 protected areas (up to 100% of the entire image) |
| Alarm notification | Via DaVid protocol to PGuard advance, via E-Mail and FTP image upload in preparation |
| Alarm trigger | Application restart, EdgeStorage status, contact input, certificate expiration, service interval |
| Video Content Analysis (VCA) | VCA Motion Detection, VCA Tamper Detection, VCA Intrusion Detection, VCA Line Crossing |
| EdgeAnalytics AI Apps (Essentials)[5] | AI Motion Detection, AI Tamper Detection, AI Loitering Detection, AI Intrusion Detection, AI Line Crossing |
| EdgeAnalytics actions | Notification via DaVid/PGuard, switching of relays and LEDs, audio output, message via MQTT/HTTP |

| Protocols | |
|---|---|
| Ethernet protocols | IPv4 (ARP, ICMP, IGMPv2/IGMPv3), UDP, TCP, LLDP, CDP (v1,v2), DSCP (QoS), DNS, DHCP, NTP, HTTP/HTTPS, RTSP/RTP/RTCP, SNMP (v1, v2c, v3), MQTT |
| Ethernet protocols in preparation | IPv6 (NDP, ICMPv6, MLDv1/MLDv2, SLAAC, RDNSS), UDPv6, TCPv6, DNSv6, DHCPv6, LDAP |
| Communication protocols | DaVid, DaVidS, ONVIF Profile M, ONVIF Profile S, ONVIF Profile T, SNMP (v1, v2c, v3) |
| Security | HTTPS encryption, SSL/TLS 1.2 (AES), network access control according to IEEE 802.1X |

| Connections | |
|---|---|
| Ethernet | 1× RJ45, 10BASE-T/100BASE-TX PoE |
| Audio Line IN[6][7] | 1× 3.5 mm phone jack for stereo plug <br> Input level: max. 2.83 V$_{p\text{-}p}$ <br> Input impedance: 29 kΩ |
| Audio Line OUT[6][7] | 1× 3.5 mm phone jack for stereo plug <br> Output level at 10 kΩ load: max. 3.11 V$_{p\text{-}p}$ <br> Output impedance: 320 Ω |
| Contact I/O interface[6] | 2× Contact IN / 2× Contact OUT |
| Power IN[6] | 1× Connection terminal 2 poles |

| LED Illumination (optional) | |
|---|---|
| Type | Five semi-covert 850 nm IR LEDs <br> Five white light LEDs |
| Intensity | Individually adjustable per LED |
| IR Range | Up to approx. 30 m |
| IR Beam angle | Up to approx. 90° per LED, adaptively controlled according to focal length |
| Day/Night switching threshold | Adjustable |

5) Optional license DLC - EdgeAnalytics AI Apps (Essentials) or AI Camera Support and License Interval Premium required.
6) Available only in connection with the optional DOMERA® Breakout Cable.
7) Optional license for the use of the Audio Line IN and OUT interface required (DLC - Audio Line IN/OUT).
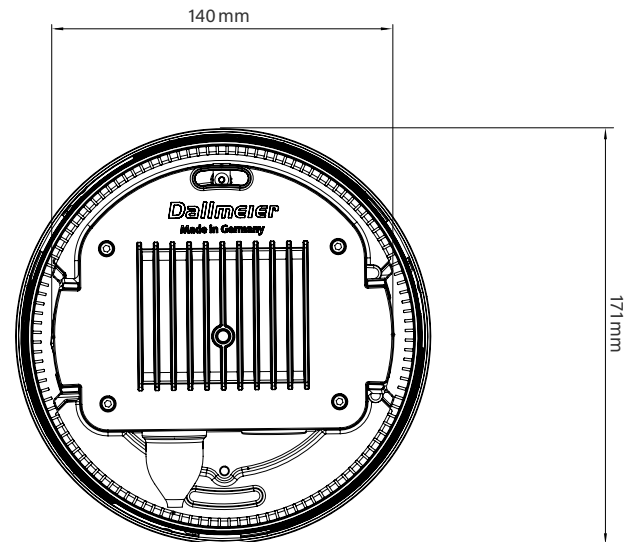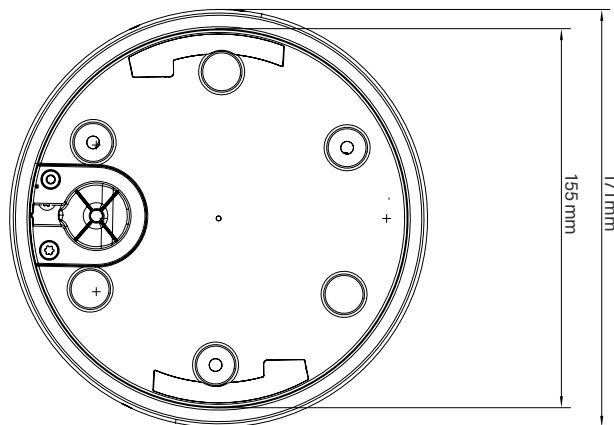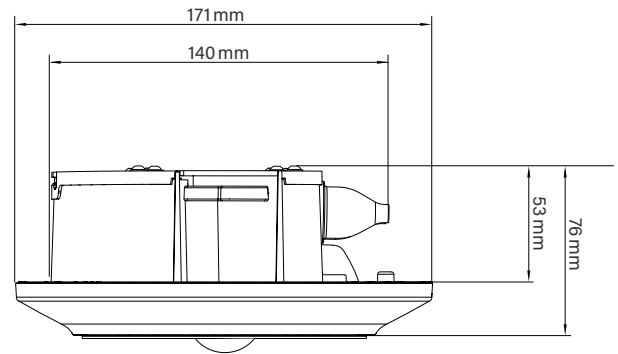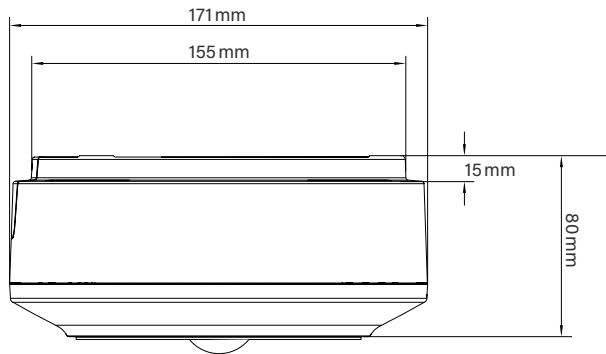
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| Electrical Data | |
|---|---|
| Voltage supply | PoE (Class 0)<br>24 V DC - 48 V DC ±5% (with DOMERA® Breakout Cable) |
| PoE standard | IEEE 802.3af |
| Power consumption | Max. 12 W |

| Mechanical Data | |
|---|---|
| Dimensions | Approx. Ø 171 × H 76 mm (H 80 with surface mount adapter)<br>Ø 6.7 × H 3.0 inches (H 3.1 with surface mount adapter) |
| Weight | Approx. 1.2 kg (1.4 kg with surface mount adapter)<br>2.6 kg (3.0 kg with surface mount adapter) |
| Adjustment | Motorized fine alignment via the network |
| Vandal-resistant | Yes |
| IK protection | IK10 |
| IP rating | IP66 |
| Color | In-ceiling housing black<br>Housing cover black |

| Environmental Conditions | |
|---|---|
| Operating temperature | −40°C to +50°C (−40°F to +122°F) (peak up to +65°C (+149°F), not permanent) |
| Start-up temperature | −25°C to +50°C (−13°F to +122°F) |
| Relative humidity | 0% – 90% RH, non-condensing |

| Compatibility | |
|---|---|
| Recording | SMAVIA Recording Server V8.x.x<br>SMAVIA Recording Server V9.x.x<br>SeMSy® Recording Server V10.x.x |
| Evaluation | SMAVIA Viewing Client<br>SeMSy® Workstation Software<br>SeMSy® Compact |

| Miscellaneous | |
|---|---|
| Ambient light sensor | Integrated |
| Position sensor | Integrated |
| Microphone | Integrated in DOMERA® Dual Matrix LED Ring |
| Local memory | 50 MB RAM memory |
| Memory extension | microSDXC 32/64 GB, Class 10, UHS-I (optional) |
| Configuration and live video | Via web browser (all major platforms) |
| Languages | German, English |
| Programming interface | Open platform for integration into 3rd party systems using API |
| ONVIF compliance | Profile M, Profile S, Profile T |
| GDPR compliance | Supported |

| Approvals/Certifications | |
|---|---|
| Type | CE, FCC, RCM, EAC, IEC/EN 62471 and UL2043 compliant |

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See more.

**Dallmeier**

MADE IN GERMANY