COMPLETE PROTECTION
WITH SUPERIOR DESIGN INSIDE & OUT
HIKVISION
EXPLOSION-PROOF PRODUCTS
BACKGROUND

On average, accidental explosions cause 7 casualties a day. With the rapid development of industries dealing with flammable and combustible materials, such as oil, chemical, coal, and others, explosion accidents have become more frequent, resulting in loss of life and resources. Most of these accidents are the result of machinery malfunction, which reminds everyone of the importance of safety awareness.

What kind of products help prevent such accidents and injuries when such malfunctions occur? Primarily, explosion-proof devices.
HOW TO PREVENT EXPLOSIONS

THE THREE ELEMENTS OF COMBUSTION
Explosive substances and combustion-supporting gases are the external factors that product manufacturers cannot control. However, manufacturers can control the internal factors – the combustion source.

Explosion-proof structure
Hikvision explosion-proof cameras use flame-proof housing and a cylindrical flame-proof joint. The adhesive joint guides internal explosive gases to the conduit to prevent combustion from escaping the camera when an explosion happens.

Explosion-proof materials
Hikvision explosion-proof cameras are covered by 304/316L stainless steel, and the thickness of the cover is more than 3.5 mm. Using ANSYS for finite element force analysis, the structure can withstand 1.5 times internal explosion pressure. No broken or permanent deformation results after an explosion.
CERTIFICATION

IECEx AUTHENTICATION
The IECEx authentication includes 'Gas Explosion-proof' and 'Dust Explosion-proof' certifications.

Gas explosion-proof designations:

Ex: Ex-mark

Classification of Electrical Apparatuses
- Group I: Electrical apparatus for mines susceptible to firedamp
- Group II: Electrical apparatus for places with an explosive gas atmosphere other than mines susceptible to firedamp
- Group III: Electrical apparatus for explosive dust environments except a coal mine

Classification of Gases
- Class A: Example: propane, hexane, benzene, gasoline, ethanol, acetaldehyde, acetal, methylamine
- Class B: Example: ethylene, dimethyl ether, coke oven gas
- Class C: Example: hydrogen, acetylene, carbon disulfide

Equipment Protection Designation

<table>
<thead>
<tr>
<th>Temperature class</th>
<th>Maximum surface temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>6450°C</td>
</tr>
<tr>
<td>T2</td>
<td>4500°C</td>
</tr>
<tr>
<td>T3</td>
<td>3000°C</td>
</tr>
<tr>
<td>T4</td>
<td>2000°C</td>
</tr>
<tr>
<td>T5</td>
<td>1350°C</td>
</tr>
<tr>
<td>T6</td>
<td>≤85°C</td>
</tr>
</tbody>
</table>

Dust explosion-proof designations:

Ex tb IIIC T80°C Db

Equipment protection levels & usage areas

<table>
<thead>
<tr>
<th>Protection levels</th>
<th>Usage areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>ga</td>
<td>zone 0</td>
</tr>
<tr>
<td>gb</td>
<td>zone 1</td>
</tr>
<tr>
<td>gc</td>
<td>zone 2</td>
</tr>
<tr>
<td>ds</td>
<td>zone 20</td>
</tr>
<tr>
<td>db</td>
<td>zone 22</td>
</tr>
<tr>
<td>dc</td>
<td>zone 22</td>
</tr>
</tbody>
</table>

All Hikvision explosion-proof products have acquired the IECEx and ATEX certifications.

IECEx Authentication
- Ex db IIIC T6 Db
- Ex tb IIIC T80°C Db

ATEX Authentication
- Ex II 2 G Ex db IIIC T6 Db
- Ex II 2 D Ex tb IIIC T80°C Db

Mobile Authentication (available for mobile models)
- ENSC1SS, EN14443, EMARK
- Anti-corrosion: CS (CS-1, CS-M), NEMA4X
- CE / FCC / IC / RCM / KC / RoHS / REACH / WEEE / UL (not cUL) / CSA
PRODUCT SHOWCASE

Highlights

- Excellent Protection
  TVS 6000 V Lightning Protection

- Mobile Authentications
  EN50155; EN45545; EMARK certification

- Adequate Firmness
  IP68 / 316L stainless steel

- DarkFighter
  Low illumination

- Complete Certification
  IECEx / ATEX (Dual certificates)

- H.265 / H.265+
  Excellent encoding that vastly reduces bandwidth and storage

Product Matrix

- DS-2DF6223-CX(W)
- DS-2DY9236I-CWX
- DS-2DB4223/CWX
- DS-2DB4236/CWX
- DS-2XE6422FWD-IZHRS
- DS-2XE6452FWD-IZHRS
- DS-2XE6222F-IS
- DS-2XE6242F-IS
- DS-2XE6126FWD-HS
- DS-2XE6025G0-LS/LSM
- DS-2XE6045G0-LS/LSM

<table>
<thead>
<tr>
<th>Optical zoom</th>
<th>Resolution</th>
<th>IR distance</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>36x / 23x</td>
<td>2 MP</td>
<td>150 meters</td>
<td>36x/316L stainless steel body available</td>
</tr>
<tr>
<td>23x / 36x / 4x / fixed lens</td>
<td>2 / 4 / 5 MP</td>
<td>200 / 200 meters / 80 meters / 150 meters / 30 meters</td>
<td>5.9 - 137.5 mm / 5.7 - 205 mm / 2.8 - 12 and 8 - 32 mm / 2 / 2.8 / 4 / 8 / 12 / 8 mm lenses available</td>
</tr>
<tr>
<td>Fixed lens</td>
<td>2 / 4 MP</td>
<td>30 meters</td>
<td>4 / 6 / 8 mm</td>
</tr>
</tbody>
</table>

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|
PRODUCT SHOWCASE

**DS-2DF6223-CXWI**
Network Speed Dome
- 2 MP 1/1.8" progressive scan CMOS
- Up to 1920 x 1080 resolution
- 25x optical zoom; focal length: 5.9 to 153.7 mm
- Min. illuminations:
  - Color: 0.002 lux @ (F1.6, AGC ON)
  - B/W: 0.0002 lux @ (F1.6, AGC ON)
  - 0 lux with IR
- Horizontal viewing angle: 120°-90°
- Up to 150 m IR distance
- Supports three streams simultaneously

**DS-2DY9238I-CWXIW/316L**
Positioning System
- 2 MP 1/1.8" @ 30 fps progressive scan CMOS
- Min. illumination:
  - Color: 0.002 lux @ (F1.5, AGC ON)
  - B/W: 0.0002 lux @ (F1.5, AGC ON)
  - 0 lux with IR
- 36x optical zoom, 16x digital zoom
- 120-dB WDR, DNR, BLC, 3D DNR, Defog, EIS, Regional Exposure, Regional Focus
- Up to 150 m IR distance

**DS-2XE422F-WDR-12HRS**
EXIR VF Bullet
- Up to 5 MP high resolution
- 120-dB WDR
- 2.8 to 12 mm or 8 to 32 mm lens
- 6 behavior analyses, 3 anomaly detections, 1 statistics and face detection
- IR up to 150 m [8-32 mm] or 80 m (2.8-12 mm)
- IP68 standard
- 316L stainless steel
- Wiper

**DS-2DB4231I-CXWE/316L**
**DS-2DB4236I-CXWE/316L**
IR ZOOM Bullet
- 2 MP 1/1.8" progressive scan CMOS
- Min. illumination:
  - Color: 0.002 lux @ (F1.5, AGC ON)
  - B/W: 0.0002 lux @ (F1.5, AGC ON)
  - 0 lux with IR
- Horizontal viewing angle: 120°-90°
- 25x optical zoom, 12x digital zoom
- Digital WDR, 3D DNR, BLC
- 85 to 265 VAC / PoE+ [IEEE 802.3at class 4]
- Up to 200 m IR distance

**DS-2XE8222F-IS**
**DS-2XE8242F-IS**
Fixed Lens Bullet
- Up to 4-Megapixel resolution
- 4 / 6 / 8 / 12 mm lens, optional
- 120-dB WDR
- 6 behavior analyses, 2 anomaly detections, 1 recognition
- Housing materials: 304 or 316L stainless steel, optional
- IR range: 30 m
- 190 x 260 VAC / PoE / IP68

**DS-2XE6126FWD-HS**
**DS-2XE6146FWD-HS**
Fixed Lens Dome
- 1/2.8" Progressive Scan CMOS
- 2 / 8 / 4 / 8 mm lens, optional
- Up to 4-Megapixel high resolution
- 120-dB WDR
- 316L stainless steel
- Image enhancement: BLC, 3D DNR, HLC, Defog, EIS
- Behavior analysis, exception detections and face detection
- IP68

These accessories are ATEX and IECEx certified

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket</td>
<td>Anti-explosion Hose to protect cables that connect electrical devices together. Length: 1 meter</td>
<td>2077020485, 2077020523, 2077020536, 2077020561, 229222030 X / 316L [C2 can cover D]</td>
</tr>
<tr>
<td>Flexible Conduit</td>
<td>Round 5 or 16.18 Stainless steel, optional. Four cable outlets. ATEX and IECEx certified explosion-proof performance. [1D 2 G Ex db IIC T6 Gb; II 2 G Ex db IIC T80°C Db; IP68]</td>
<td>307202052, 3072020523, 3072020536, 307202054, 3072020561, 229222030 X / 316L [10.7 x 10.7 x 3.8&quot;]</td>
</tr>
</tbody>
</table>

- 1/2.7" Progressive Scan CMOS
- Up to 4-megapixel high resolution
- 4 / 6 / 8 mm lens, optional
- 120-dB WDR
- 6 behavior analyses, 2 anomaly detections, 1 recognition
- Housing material: Aluminum
- IR range: 50 m
- 24 VDC / PoE
- IP68 / IK08
Installation Example – Total Explosion-proof Solution

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flexible conduit, 220 V power line, control line, network cable</td>
</tr>
<tr>
<td>2</td>
<td>Flexible conduit or galvanized steel pipe</td>
</tr>
<tr>
<td>3</td>
<td>Explosion-proof terminal box [IECEx and ATEX certified and with IP68 ingress protection]</td>
</tr>
</tbody>
</table>

APPLICATIONS

Gas Explosion-proof

- Oil & Gas [From energy extraction to energy consumption]
- Oil / gas exploitation
- Processing plants

Dust Explosion-proof

- Dust & Powders [Manufacturing]
- Chemical plants
- Military factories
- Powder work, offices

Example – Oil Depots

<table>
<thead>
<tr>
<th>Area</th>
<th>Recommended Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading area</td>
<td>Explosion-proof bullet, explosion-proof PTZ</td>
</tr>
<tr>
<td>Tank area</td>
<td>Explosion-proof positioning system, explosion-proof bullet</td>
</tr>
<tr>
<td>Monitoring area</td>
<td>Explosion-proof fixed lens dome</td>
</tr>
<tr>
<td>Office area</td>
<td>HD network cameras</td>
</tr>
</tbody>
</table>
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