DEK-120S (Ex) Explosion-proof Integrated PTZ Camera

Installation and operation manual | Source edition as supplied

Changzhou Derke Electromechanical Equipment Co., Ltd.

English translation of DEK-120SEX.pdf. Source ratings, historical standards and source conflicts are retained. This translation does not update the product specification or issue a new certificate.

Source notes

The source marking and nameplate must be checked for the supplied unit. Source documents may give different ratings from separate product specification sheets. The 82 command overlaps a range also marked reserved in the source; confirm with DEK. Original drawings are retained as reference figures with English legends.

Safety information

Read this manual carefully before installation and use. Install only in an environment meeting the manual requirements and on a secure support. Before energizing, check that the supply matches the equipment nameplate. Do not open the explosion-proof chamber in high humidity: trapped moisture may corrode components and impair image quality. Connect cables as specified. Disconnect power before maintenance or repair. Protect flameproof joint surfaces during disassembly and assembly. Collect circuit boards, electronic components, plastics and lubricants during maintenance or disposal; do not discard them indiscriminately. Transfer them to the relevant environmental disposal service.

Technical parameters from the source

Parameter	Value
Input voltage	220 VAC
Input range	+/-10 (unit omitted in source)
Operating current	<1 A
Power consumption	85 W
Electrical connection	Composite cable for power and RJ45
Communication	ONVIF 2.0; configurable baud rate, default 2400 bps; configurable protocol, default PELCO-D
Material	304 or 316L stainless steel
Ingress protection	IP68, 1.2 m for 30 min
Pan / tilt range	360° / +/-90°
Pan / tilt speed	Approximately 0.1-30°/s in both axes
Net / shipping weight	30 / 33 kg
Overall dimensions	498 x 310 x 377.5 mm (L x W x H)
Mounting	Fixed bracket, base or pole
Atmospheric pressure	86-106 kPa
Ambient temperature	-40°C to +60°C
Relative humidity	95% RH at +25°C; inequality symbol unclear in source

1. Overview

DEK-120S (Ex) is an explosion-proof integrated PTZ camera for clear monitoring in flammable/explosive gas and combustible-dust environments. The source states that the equipment is designed to GB3836.1-2010 (general requirements), GB3836.2-2010 (flameproof enclosure type d) and GB12476.1-2010 (enclosure and surface-temperature protection for combustible dust). Intended applications include chemical plants, petroleum facilities and grain stores. These are source-document statements, not a new certification.

2. Model and marking

Model coding: DEK = company; 120 or 130 = product code; S or IR/F/Y = camera code; Ex = explosion protection. Marking: Exd IIC T6 Gb / Ex tD A20 IP68 T80°C. DO NOT OPEN WHILE ENERGIZED. Wait five minutes after disconnecting power before opening.

2. Electrical safety

Under standard test atmospheric conditions, insulation resistance between supply terminals and enclosure shall be at least 100 megohms when measured at 500 VDC. The source specifies a 50 Hz, 2000 V withstand test for one minute without breakdown or flashover.

3. Installation checks

Before installation check: (a) explosion-proof certificate number is present; (b) the protection marking is suitable for the explosive gas mixture; (c) all explosion-proof parts are free from cracks and defects affecting protection; (d) internal and external grounding is reliable. Do not use the equipment if these requirements are not met. Observe the FORWARD mark on the base, or the cable-exit-to-rear orientation. Especially for wall mounting, FORWARD must face open space away from the wall or obstructions.

3. Structure drawing legend

Figure 3-1.2: 1 wiper; 2 left housing (camera); 3 PTZ body; 4 external PTZ cable; 5 sunshield; 6 viewing window; 7 right housing (IR illuminator); 8 grounding mark; 9 base. Drawing dimensions are in mm.

3. Support and dimensions

Check space for the camera and accessories and confirm base dimensions against the original drawings. The unit weighs 30 kg; its supporting structure must withstand at least twice the total unit weight (60 kg). Do not attempt to open the pan/tilt assembly yourself; electric shock and explosion risks exist, particularly in explosive gas. Contact the company if opening is necessary.

3. Pole installation

Before installing a pole, cast a concrete foundation with good-quality embedded bolts. Allow a suitable cable opening at the foundation center if required. Install the pole and secure the bolts. Pole height and thickness depend on coverage, wind speed and slope; design for the site or consult the supplier. Draw the reserved cable through the pole opening and fit the junction-box base plate above the cable opening. Face the factory-marked midpoint of horizontal pan travel toward the main observation area and fasten the camera with bolts. Protect camera-to-junction-box wiring with explosion-proof flexible conduit, or use armored cable. Protect junction-box-to-control-room wiring with metal conduit, or lay armored cable directly.

3. Bracket installation

Face the factory-marked midpoint of pan travel toward the main observation area. Check mounting-hole locations against the source base drawing. Protect camera-to-control-box wiring with explosion-proof flexible conduit, or use armored cable. Protect the junction-box-to-control-room run with metal conduit, or use armored cable directly. The source bracket drawing is DEK-B5.

3. Cable preparation

Flexible conduit: unscrew the compression nut at the base and prepare the threaded fitting supplied with the flexible conduit. Tighten the threaded fitting first, then tighten the flexible conduit. Armored cable: strip the outer sheath to the required length to expose the steel armor, retain the necessary armor length and trim the excess. Fit an explosion-proof cable gland according to its Installation and Use instructions. Secure the gland-equipped armored cable directly to the appropriate explosion-proof equipment.

4. System and cable connections

The factory composite cable exits through the base and is at least 1.2 m long. Route it into the junction box and connect it to the system bus. Video may feed a monitor, DVR, picture processor or matrix. If several devices receive one video signal, use a video distributor with gain as required. Controllers must match communication interface and protocol. Some matrix systems need a protocol adapter, and some DVRs need an RS232-RS485 converter. Normally an RS485 bus permits one master; for multiple masters use a supplier-recommended arrangement with control permissions. Brown: 220 VAC; blue: 220 VAC; yellow: protective earth G. Communication: RJ45. Factory defaults: address 1, baud rate 2400, protocol PELCO-D. Check the actual product nameplate and cable identification before connection.

Special preset commands

User-defined shortcut commands are supported. Call and Set are different operations.

65: Call 65 + subpreset: PTZ system configuration

66: Reserved

67: Call 67 + subpreset: IR configuration

68: Call: full-circle scan; Set + subpreset: full-circle scan configuration

69: Call: limit scan; Set + subpreset: limit-scan configuration

70: Call + subpreset: preset patrol; Set + subpreset: patrol dwell time

71: Reserved

72: Call + subpreset: idle-action configuration

73: Call + subpreset: power-on action

74: Reserved

75: Call + subpreset: camera parameters

76: Reserved

77: Call: cancel image mirroring

78: Call: image mirroring

79: Call: PTZ reset

82: Set 82 + (10-250): motor-drive output current

80-84: Also printed as reserved in source; overlaps 82

85: Call: wiper ON

86: Call: wiper OFF

87: Call: washer ON; Set: wiper ON

88: Call: washer OFF; Set: wiper OFF

89-94: Reserved

95: Call: open menu

96-99: Reserved

PTZ system configuration: preset 65

Call preset 65, then call the subpreset within 15 seconds. 1/2: proportional speed reduction ON/OFF; 3/4: automatic flip ON/OFF; 5/6: language-configuration switch ON/OFF; 7/8: automatic communication-protocol recognition ON/OFF; 9-10: reserved; 11/12: software-address enable ON/OFF; 13/14: PELCO-P preset-offset enable ON/OFF (printed PECOL-P in source); 15/16: reverse horizontal control ON/OFF; 17/18: reverse vertical control ON/OFF; 19/20: OSD menu ON/OFF; 21: restore factory settings; 22: restore system clock settings. 23: horizontal speed limit, Call 65+23+(1-64); 24: vertical speed limit, Call 65+24+(1-64); 74: software address, Call 65+74+(1-255); 82: washer-water duration, Call 65+82+(3-60 seconds); 83: washer/wiper duration, Call 65+83+(3-60 seconds); 84: washer-tank position; 85/86: clockwise/counterclockwise wiper direction; 87/88: single/continuous wiper mode; 89: wiper angle, Call 65+89+(1-180); 90-255: reserved.

Camera configuration: preset 75

After calling preset 75, call the subpreset within 15 seconds. 1: camera menu (camera support required); 2/3: camera display ON/OFF; 4/5: digital zoom ON/OFF; 6/7: backlight compensation ON/OFF; 8/9: automatic/manual focus; 10-255: reserved.

Infrared configuration: preset 67

After calling preset 67, call the subpreset within 15 seconds. 1-6: IR detection sensitivity levels 1-6; 7: automatic IR; 8: manual IR ON; 9: manual IR OFF; 10: timed IR; 11: camera-controlled IR; 12: automatic IR brightness; 13-16: reserved; 17: initialize IR; 18/19/20: low/medium/high brightness; 21/22: IR synchronization ON/OFF; 23: synchronization-time setting, Call 67+23+XXX; 24-255: reserved.

Full-circle scan: preset 68

After SETTING preset 68, SET the subpreset within 15 seconds: 1-64: full-circle scan speed levels 1-64; 65/66: forward/reverse direction; 67: start position; 68: delete full-circle scan; 69-255: reserved.

Limit scan: preset 69

After SETTING preset 69, SET the subpreset within 15 seconds: 1-64: limit-scan speed levels 1-64; 65/66: forward/reverse direction; 67: start position; 68: end position; 69: delete limit scan; 70/71/72/73/74/75/76/77/78: dwell 3/5/10/15/20/30 seconds / 1/2/3 minutes; 79-255: reserved.

Patrol operation and dwell: preset 70

After CALLING preset 70, CALL subpreset 1-9 within 15 seconds to start patrol route 1-9; 10-255 reserved. After SETTING preset 70, SET subpreset within 15 seconds to select dwell: 1=3 s, 2=5 s, 3=10 s, 4=15 s, 5=20 s, 6=30 s, 7=1 min, 8=3 min. The source prints the remaining reserved range inconsistently; confirm firmware behavior.

Idle action: preset 72

After calling preset 72, call the subpreset within 15 seconds: 1-32: move to preset 1-32; 33: patrol route 1; 34: full-circle scan 1; 35: limit scan 1; 36: idle action OFF; 37-40: reserved; 41/42/43/44/45/46/47/48: idle time 30 s / 60 s / 2 / 3 / 5 / 10 / 30 / 60 min; 49-255: reserved.

Power-on action: preset 73

After calling preset 73, call the subpreset within 15 seconds: 1-32: move to preset 1-32; 33: patrol route 1; 34: full-circle scan 1; 35: limit scan 1; 36: restore action before power loss; 37-255: reserved.

DIP-switch configuration

SW1 address bits 1-8 have weights 1, 2, 4, 8, 16, 32, 64, 128. SW2 bit 1 controls the RS485 termination resistor: ON enables it. SW2 bits 2/3 select baud rate: 0/0=1200, 1/0=2400, 0/1=4800, 1/1=9600 bps. SW2 bit 4 is reserved.

Explosion-proof construction

The enclosure is designed so an internal explosion does not ignite the surrounding explosive mixture. Protection depends on enclosure strength, flameproof-joint gaps and lengths, and maximum surface temperature. After welding and finish machining, the source specifies a GB3836.2 hydrostatic test at 2 MPa for 10-12 seconds, with no leakage, structural damage or deformation. Maximum enclosure surface temperature during normal operation is 80°C. The tempered-glass window shall withstand impact and thermal-shock tests. Enclosure protection is IP68. A compression-nut cable-entry device clamps the cable firmly without loosening.

Troubleshooting

No image: check that power is connected and supplied correctly; check for poor video-signal cable contact. Intermittent image: check the video-signal cable connections.

Transport and storage

The packaged product may be transported by any method provided it is protected from direct rain and snow. The source permits storage for more than one year at 0°C to +40°C and relative humidity not exceeding 90%.

Warranty

The source promises replacement within six months and a one-year warranty. Free repair is provided during the warranty period, but material and labor charges may apply to damage caused by operation contrary to the manual, unauthorized disassembly, lightning or unavoidable natural disasters. Any separate written service commitment or agreement between the company and user takes precedence.

Company statement

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Reference illustrations

Original dimension drawings and interface screenshots are retained for reference. Original-language labels may remain inside these images; the English operating text and legends explain them. Dimensions are copied from the supplied source, not redrawn or recalculated.

Figure 1. Source page 6: Structure, Figure 3-1.2; numbered parts are translated in section 3.

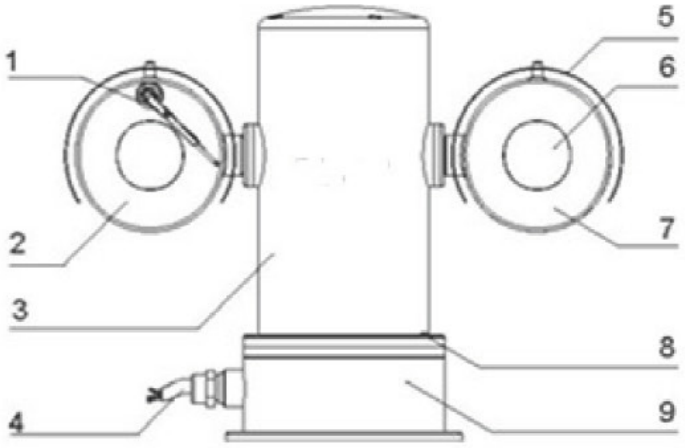
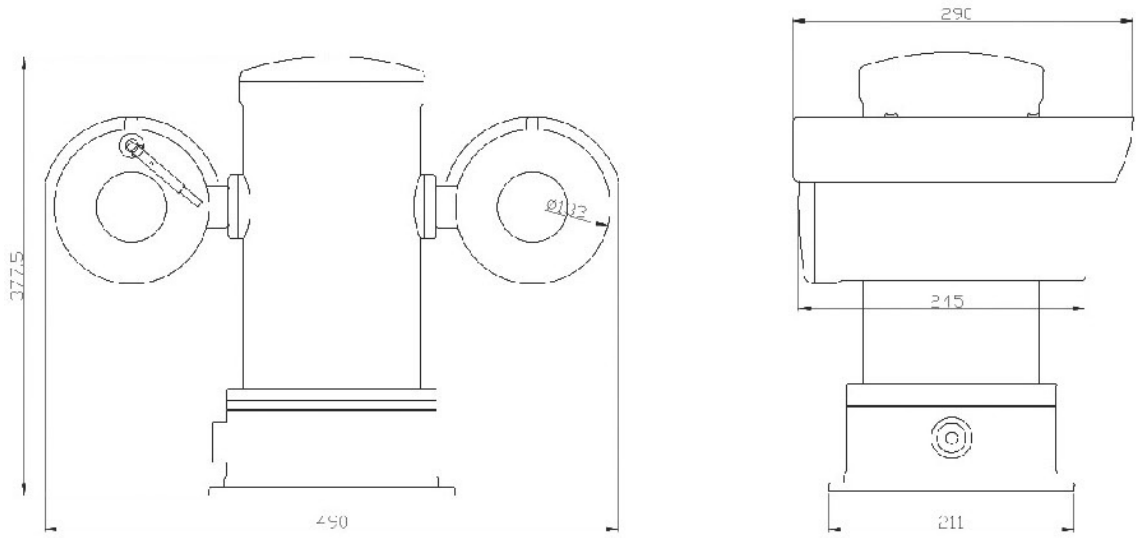


图3-1.2

Figure 2. Source page 7: Overall dimensions, Figure 3-1.3, mm.



单位：mm

图3-1.3

Figure 3. Source page 7: Base mounting dimensions, Figure 3-1.4, mm.



单位： mm

图3-1.4

Figure 4. Source page 8: Pole installation.

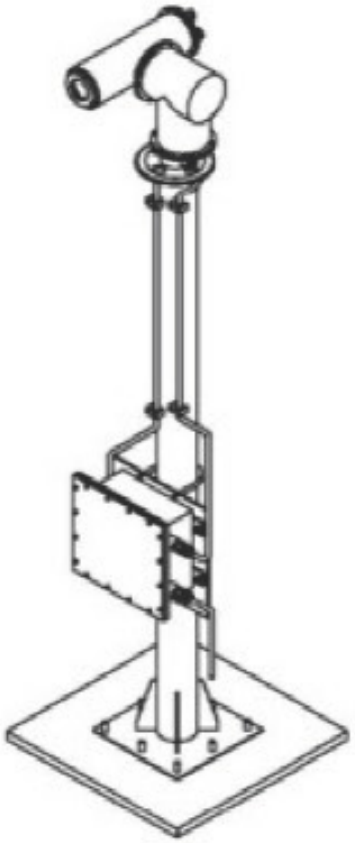


Figure 5. Source page 8: Wall-bracket installation.

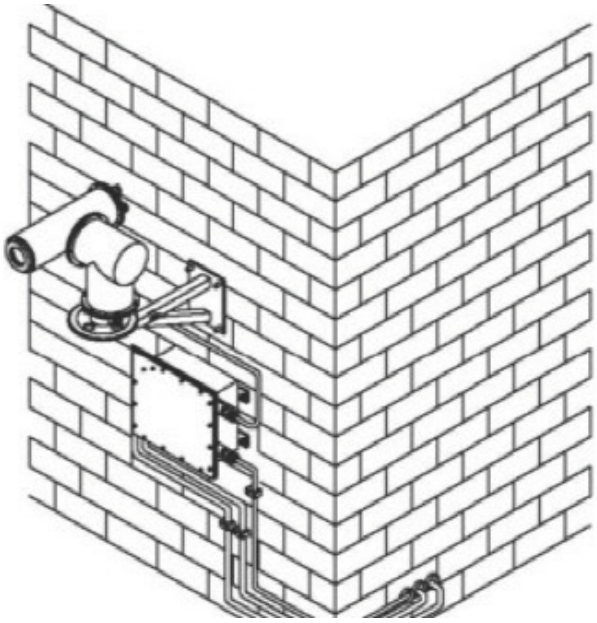
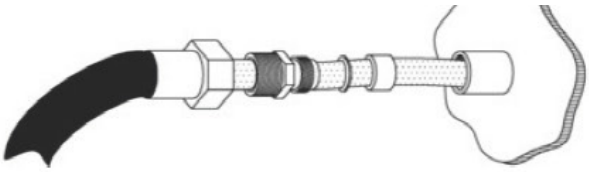


Figure 6. Source page 9: Flexible conduit connection.



b. 先拧紧螺纹接头，再拧紧防爆挠性管。

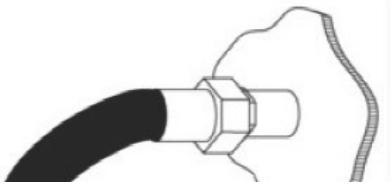
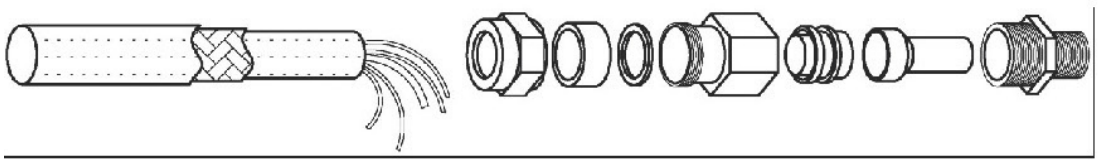


Figure 7. Source page 9: Armored cable and cable-gland assembly.

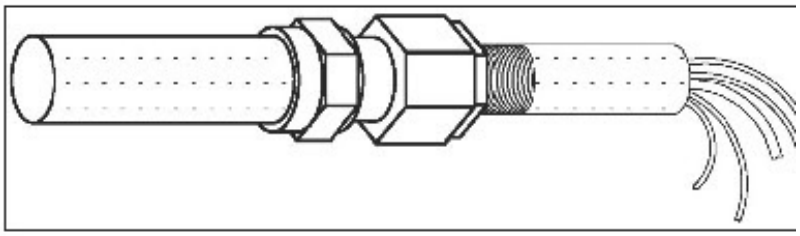
3.5.2 使用铠装电缆

a. 根据实际需要，剥去适当长度的电缆外护套，露出金属铠装皮（钢带）；留取一定长度的钢带，切除多余的部分。



b. 将防爆格兰安装到铠装电缆上，有关防爆格兰（填料函）的使用方法，请参考“防爆格兰的安装与使用”文件。

Figure 8. Source page 10: Assembled cable gland.



带有防爆格兰的铠装电缆可以直接和各种防爆器材牢固连接

Figure 9. Source page 15: SW2 and SW1 DIP-switch arrangement; see English configuration table.

止选择：

号：	1	2	3	4	5	6	7	8
据：	1	2	4	8	16	32	64	128

1 位为 RS485 终端电阻打开与关闭，ON--打开。