NEW FORWARD TECHNOLOGY LIMITED
新科科技有限公司

Hong Kong Security Company
Licence **No. 2327**

NO MAINS POWER · NO CABLING · SOLAR + 4G

Solar-Powered 4G PTZ Camera

A 4 MP, IP66 pan-tilt camera with built-in 4G that registers to your central NVR and pushes video for recording — integrated with a lightweight PVC solar kit. No mains power, no network cabling.



Integrated assembly + lightweight PVC solar kit
40 W panel · 30 Ah lithium battery · image for illustration

4G, no cabling
Insert a SIM and go live — no fixed-IP SIM needed

Lightweight solar kit
PVC kit · 40 W panel + 30 Ah lithium

Registers to your NVR
Pushes video to the monitoring centre for recording

Integrated assembly
Camera and solar kit install as one unit

BUILT FOR

Construction sites · Remote sites · Road & drainage · Ponds & farms · Car parks & yards · Temporary works

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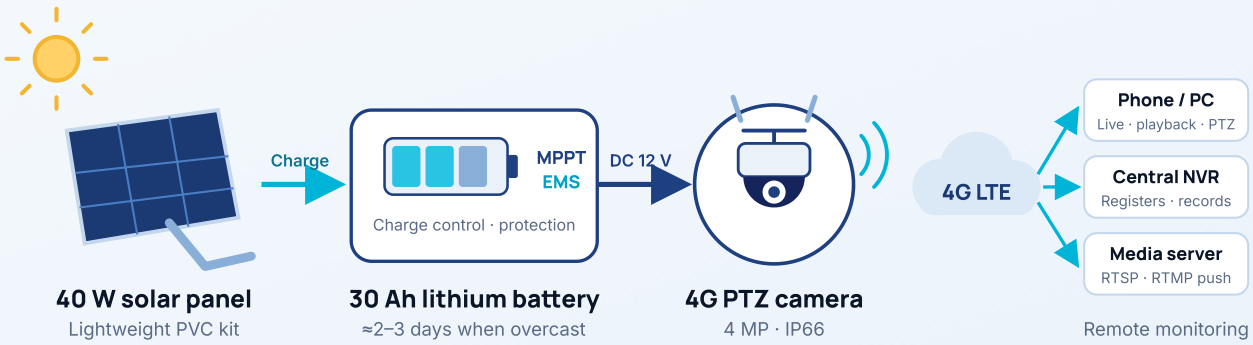
HOW IT WORKS

Harvest the sun, stream over 4G — zero site infrastructure

By day the solar panel powers the camera and charges the lithium battery through an MPPT controller and energy management system (EMS); at night or on dull days the battery takes over. The camera's built-in 4G registers to your central NVR and pushes video there, and can also be viewed remotely on phone or PC — no mains power, fibre or fixed IP required.



40 W solar panel
Lightweight PVC kit

30 Ah lithium battery
≈2–3 days when overcast

4G PTZ camera
4 MP · IP66

Remote monitoring

EMS energy management
Fully automatic

① Strong sun
Solar powers the camera first; surplus charges the battery

② Overcast / night
When solar falls short, the battery tops up automatically

③ Battery full
Solar powers the camera only, avoiding overcharge

STEP 01

Install

Camera and solar kit form one integrated assembly, fixed to a pole or wall in one step — no trenching or cabling.

STEP 02

Power

Set the panel tilt with the bracket's angle scale; it charges by day and the battery takes over at night.

STEP 03

Connect

Insert a 4G SIM to go live; an RJ45 port allows wired use where a network exists.

STEP 04

Monitor

Live view, PTZ control and playback on phone or PC; the camera registers to your NVR for central recording.

WHERE IT'S USED

- **Construction sites** — Site gates and material storage areas
- **Remote & rural** — No mains power or fixed broadband
- **Road & drainage works** — Works areas and routes
- **Fish ponds & farms** — Theft deterrence, remote checks
- **Car parks & yards** — Open areas and perimeters
- **Events & hoarding** — Short-term, remove when done

The outcome

Where there is no mains power or fixed network, one camera-plus-solar kit delivers power, storage, connectivity and surveillance — no trenching or cabling, and it can be removed and redeployed on the next site.

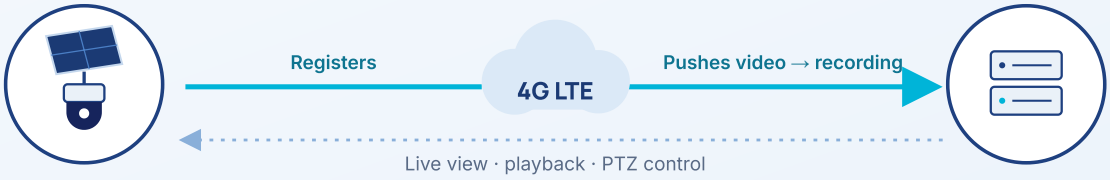
Install & go

KEY FEATURE — ACTIVE REGISTRATION TO NVR

Registers itself to your NVR for central recording

A 4G SIM normally gets a dynamic, NAT'd IP, so a monitoring centre cannot easily reach the camera — the usual fix is a costly fixed-IP data plan. This solution turns it around: **the camera dials out over 4G and registers itself to your central NVR / platform**, then **pushes its video** there for recording. **No fixed or public IP** is needed on site, and the on-camera microSD keeps a local backup copy.

Camera registers & pushes video over 4G — no fixed-IP SIM on site



FIELD SITE
Solar 4G PTZ camera
4G SIM · dynamic IP

INTERNET

MONITORING CENTRE
NVR / platform · operators
Fixed IP or domain (DDNS)

DUAL-LAYER RECORDING

On-camera microSD (up to 512 GB)
local loop recording on site

+

Central NVR recording
long-term, subject to NVR storage

No fixed-IP SIM
Works behind 4G dynamic IP / NAT — no costly static-IP data plan.

Pushed central recording
Video is pushed to the central NVR and kept far longer than microSD allows.

Multi-site management
Cameras at many remote sites register to one NVR / platform for a single view.

Dual-layer backup
On-site microSD + central NVR — footage survives even if a camera is damaged or stolen.

SETUP 01

On the camera
Enter the NVR / platform registration details: device ID, IP or domain, and port.

SETUP 02

On the NVR
Add a device with the matching ID; the monitoring centre needs a fixed IP or domain (DDNS).

SETUP 03

Online automatically
The camera registers over 4G and pushes video; the NVR starts central recording.

The outcome

Any site without mains power or fixed broadband gets live remote monitoring plus central recording over a standard 4G SIM. New Forward configures and commissions the whole camera-to-NVR link.

Configured by NF

Note: the connection method (e.g. GB/T 28181 active registration or RTMP push) and compatible NVR models are confirmed and configured by New Forward for each project. Recording retention depends on NVR storage, channel count, resolution and recording mode.

THE CAMERA

4 MP 4G pan-tilt camera for all-weather outdoor surveillance

An all-in-one outdoor PTZ camera with built-in 4G and dual external antennas, remote pan & tilt, automatic day/night switching and two-way audio. It records locally to microSD and connects to existing systems over standard ONVIF, GB/T 28181, RTSP and RTMP protocols.



Key features

- **4 MP high definition** — 1/2.7" CMOS, 2560 × 1440
- **Built-in 4G** — SIM-ready, dual external antennas
- **Remote pan & tilt** — Control from phone or web browser
- **Auto day / night** — ICR filter + LED illuminator array
- **Two-way audio** — Audio input and output
- **H.265 dual stream** — 2K main, 720P sub-stream, saves data
- **microSD up to 512 GB** — 24/7 loop, remote playback & download
- **Standard protocols** — ONVIF · GB/T 28181 · RTSP · RTMP
- **IP66 & lightning protection** — −25 °C to 50 °C, < 95% RH
- **Low power** — 5 W max — ideal for solar

CONNECTIVITY, INTEGRATION & RECORDING

Networking

- Built-in 4G — no fibre or Wi-Fi needed on site
- Works with standard unrestricted data SIMs and IoT SIMs
- 1 × RJ45 10/100M port for wired use
- TCP/IP, DHCP, DNS, NTP
- WebRTC cross-network viewing (via cloud)

Integration

- ONVIF / GB/T 28181 into NVR / VMS
- RTSP pull, RTMP push to your own media server
- Open HTTP API for custom development
- Active registration to NVR / platform for central recording

Recording & management

- microSD 24/7 loop recording, auto-overwrite
- Remote record on/off, playback, download, snapshot
- OSD custom text areas and time stamp
- Flip, mirror, brightness and exposure adjustment

OPTIONAL

6 mm lens: the standard 4 mm lens gives a wider view; for distant entrances or driveways a 6 mm lens can be specified to suit the mounting position.

Integrated with the lightweight PVC solar kit

The camera draws 5 W max, powered by a 40 W solar panel and 30 Ah lithium battery via an aviation-connector cable — full kit details on the next page.

LIGHTWEIGHT PVC SOLAR KIT

Lightweight PVC solar kit, integrated with the camera

A 40 W panel with a 30 Ah lithium battery and charge control, built as a lightweight PVC kit and assembled with the camera as one unit — easier to carry and mount at height. MPPT charging and an energy management system balance generation, storage and supply automatically.

PVC SOLAR KIT



Image for illustration

40 W
Solar panel
High-efficiency PV cells

30 Ah
Lithium battery
15 × 2 Ah 18650 NMC cells

2–3 days
Overcast autonomy
With this camera; site-dependent

≈5 hrs
Full charge in strong sun
MPPT efficiency 95.6–99.9%

SMART CONTROL & PROTECTION

Efficient charging

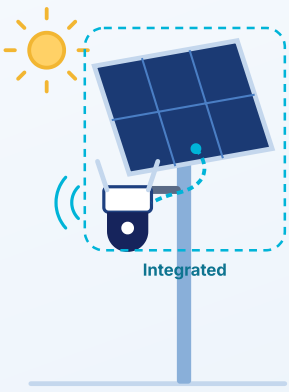
- MPPT tracking — better yield on cloudy days
- Two-stage charging: full power + trickle
- EMS: solar first, battery tops up
- Recharge resumes only below a set voltage — fewer cycles

Battery & circuit protection

- Output cut before deep discharge, restored at a safe voltage — no reboot loops
- 3 A max output, short-circuit protected
- Guards against reversed wiring on install
- 2 indicator LEDs: charging, battery level, low battery

Fewer site visits

- Watchdog restarts a hung camera within 30 s — no climbing
- Waterproof, keyed aviation connector
- Bracket angle scale for setting panel tilt
- Lightweight PVC — easier to carry and mount



Integrated assembly · pole or wall mount

1. **Face the panel to the strongest sun**, clear of shade, and set the tilt with the bracket's angle scale.
2. **Camera and solar kit form one assembly**, linked by a waterproof, keyed connector cable and fixed to a pole or wall in one step.
3. **Insert a 4G SIM and a microSD card**, power up, and view remotely on phone or PC.
4. **In the box:** panel, lithium battery and controller, bracket, connector cable, stainless steel ties and screws.

Autonomy note: "2–3 days overcast" is the supplier's rating for comparable compact 4G PTZ cameras; real runtime depends on sunlight, temperature, illuminator use, PTZ activity and 4G signal. Battery capacity drops in the cold (≈70% at −15 °C, ≈60% at −20 °C). For shaded sites or long overcast spells, size a larger panel and battery at survey.

SPECIFICATIONS & SERVICES

Specifications, supply & support

4G PTZ camera

Image sensor	1/2.7" CMOS, 4 MP
Resolution	Main 2560 × 1440; sub-stream 720P
Lens	4 mm fixed (6 mm optional)
Pan / tilt	Remote horizontal / vertical rotation
Min. illumination	0.01 lux @ F1.2
Shutter	1/3 s to 1/100,000 s
Day / night	ICR auto-switching IR-cut filter
Video	H.265 / H.264, dual stream, up to 25 fps
Bitrate	128 Kbps to 8 Mbps
Audio	Audio in & out
Network	4G LTE; 1 × RJ45 10/100M
Protocols	ONVIF, GB/T 28181, RTSP, RTMP, TCP/IP, DHCP, DNS, NTP
Storage	microSD ⩽512 GB; remote playback
Power	DC 12 V 2 A (DC 5.5 × 2.1 mm); 5 W max
Protection	IP66 weatherproof, lightning protection
Operating env.	−25 °C to 50 °C, < 95% RH
Size / weight	240 × 135 mm; 750 g

Lightweight PVC solar kit

Solar panel	40 W, high-efficiency PV cells
Kit material	Lightweight PVC
Battery	30 Ah lithium (15 × 2 Ah 18650 NMC; ≈111 Wh @ 3.7 V)
Assembly	Integrated with camera, one-unit install
Charge control	MPPT, 95.6–99.9% conversion efficiency
Charging	Two-stage (full power + trickle); EMS
Output	DC 12 V, 3 A max, short-circuit protected
Overcast autonomy	≈2–3 days (with this camera)
Charge time	Approx. 5 h in strong sun
Cold capacity	≈70% at −15 °C; ≈60% at −20 °C
Protection	Low-voltage cut-off, hysteresis, mis-wiring guard, watchdog
Indicators	2 LEDs: charging, battery level, low battery
Connection	Aviation connector (waterproof, keyed)
Accessories	Connector cable, stainless steel ties & screws

TURNKEY SUPPLY & SUPPORT

Survey & sizing
Camera angle, panel orientation and battery size matched to each location.

Installation & commissioning
Pole or wall mounting, 4G activation, mobile app and NVR / platform integration.

Maintenance & repair
Periodic inspection, battery and panel health checks, and repairs under contract.

Why New Forward Technology

Licensed security company
HK Security Company Licence No. 2327 — one-stop supply, installation & maintenance.

Proven field deployment
Solar-powered, 4G-backhauled surveillance already deployed on government works sites.

Single point of contact
From survey and supply to installation, platform integration and maintenance.

No mains power or fixed network — still need reliable outdoor surveillance?

Request a quotation or a site survey — we size the camera and solar kit to your location, then install, commission and maintain it.

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New Forward Technology Limited is an independent systems integrator; the camera and solar kit are third-party components and all trademarks belong to their owners. Specifications are indicative and subject to change without notice; images are for reference — the shipped model prevails. Runtime and charge time depend on sunlight, temperature, illuminator use, PTZ activity and 4G signal. Requires a standard unrestricted data SIM or IoT SIM (APN private-network SIMs not supported; directed SIMs need the carrier to whitelist the required domains and ports). WebRTC cross-network viewing is cloud-relayed and may incur data charges. © 2026 New Forward Technology Limited.