

POLARIS LIGHT

FREE GUIDE FOR UK SITES

Cold store and food warehouse lighting

Temperature rating, IP and IK, condensation, hygiene and LED upgrades for chillers, freezers and food warehouses

Written for maintenance, warehouse and HSE managers in cold chain and food who need to specify or replace lighting in cold spaces.

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polarislight.com

Who this guide is for, and how to use it

Cold stores, chillers and food warehouses ask more of a light fitting than an ambient warehouse. The ambient temperature, condensation, washdown and hygiene rules all change which fitting is safe to install.

This guide walks through those choices in the order you will meet them on site. It is for maintenance managers, warehouse and operations managers, and HSE or quality managers on UK cold-chain and food sites.

Maintenance
Fit ambient, IP and access at height

Warehouse ops
Keep chill and freezer picking lit

HSE / quality
Washdown, materials and audits

Six steps from space type to maintenance

1. Classify the space → **2. Temp** and IP / IK → **3. Set lux** per zone → **4. Fittings** and sensors → **5. Hygiene** and install → **6. Measure** and maintain

Match the fitting to the coldest ambient and the wettest cleaning regime on that zone.

What this guide is not

It is general information for UK sites, not a lighting design, food-safety audit or legal advice for your building. Lux values come from BS EN 12464-1:2021; product ratings come from Polaris spec sheets.

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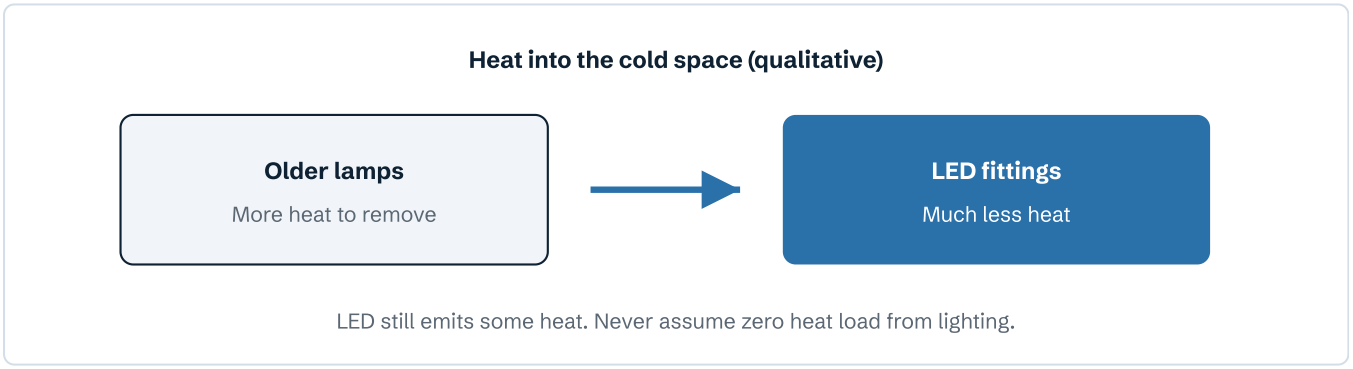
Cold spaces explained

A food site usually has several kinds of space. Treat each one separately when you choose fittings.

Space	What to watch for
Chill (about 0 to 5 °C)	Condensation at doors, frequent traffic, often washdown nearby.
Cold room / freezer to about −20 °C)	Sealed housings, rated drivers, frost on fittings and glands.
Deep freeze (below −20 °C, down to −40 °C)	Only fittings rated for that ambient. Maintenance at height is slow and uncomfortable.
Ante-room / loading dock	Warm air meeting cold air, fogging, higher lux for loading and packing.
Food production washdown	High-pressure cleaning, sealed construction, stainless fixings where specified.

Why lighting matters more in cold chain

Every watt of heat from the lighting is a watt the refrigeration plant has to remove. An LED upgrade cuts energy costs for two linked reasons: the fittings use less electrical power, and they emit **much less heat** than older metal halide or fluorescent lamps, which reduces the heat load on refrigeration.



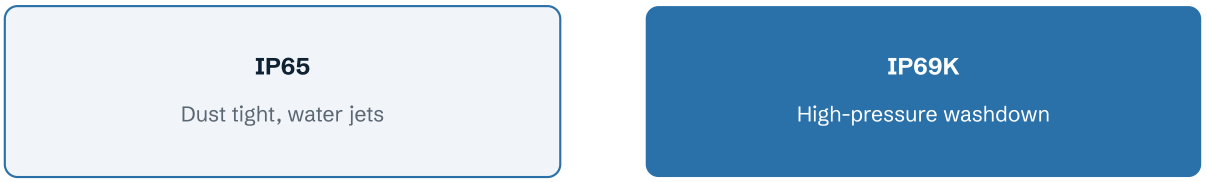
No invented savings figures

This guide does not quote percentage savings for refrigeration. Work out lighting kWh from watts, hours and your tariff, and ask your refrigeration contractor how a lower heat load affects their plant.

IP and IK ratings that matter

Ingress protection (IP) and impact protection (IK) tell you whether a fitting will survive dust, moisture, washdown and knocks from handling equipment.

Rating	What it means for cold and food areas
IP65	Dust tight and protected against water jets. Typical for high bays and battens in cold stores that are not high-pressure washed.
IP66	Stronger water-jet protection; common on outdoor floodlights.
IP69K	Rated for high-pressure, high-temperature washdown. Used on sealed washdown battens in food and wet areas.
IK08	Impact resistance suitable for many industrial spaces.
IK10	Highest common impact rating for luminaires; useful where MHE or livestock traffic is close.



Choose IP69K where daily hygienic cleaning uses close-range high-pressure water.



IK08

Typical industrial impact resistance



IK10

Highest common luminaire impact rating



MHE risk

Specify IK for forklift and traffic zones

Condensation is an ingress problem

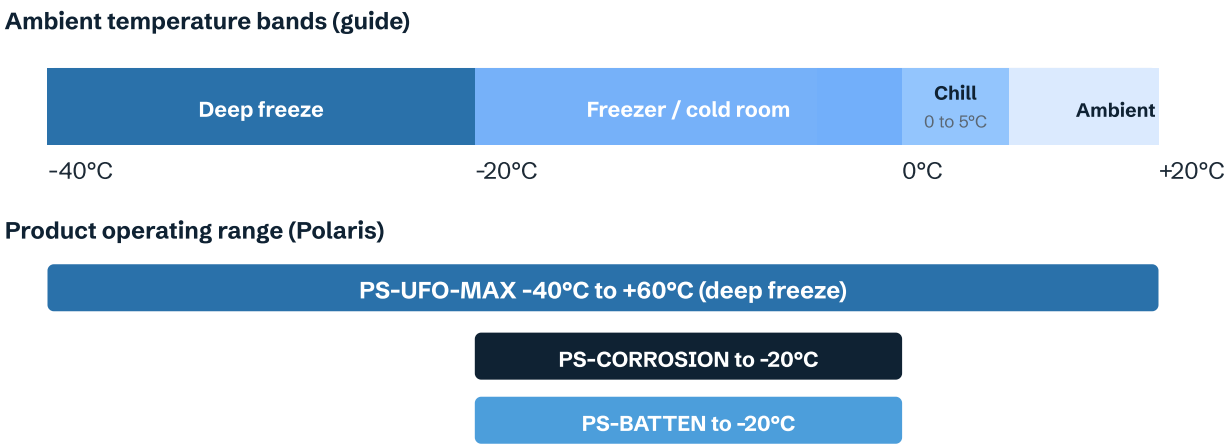
Warm, moist air entering a cold chamber can condense inside a poorly sealed fitting. Spec sealed housings, correct cable glands and keep covers closed during install.

IP69K washdown detail for PS-CORROSION is on its Polaris spec sheet (water temperature, pressure and spray angles). Quote that sheet when you need the test figures.

Low-temperature driver performance

Drivers and LEDs are rated for an ambient range. Below that range the fitting may fail to start, lose output or wear out early. Always match the coldest design ambient of the zone.

Temperature bands and Polaris products



Bands are a planning aid. Use the design ambient on your drawings. Deep freeze below -20°C: PS-UFO-MAX only among the products in this guide.

Product	Operating temperature	Use in this guide
PS-UFO-MAX	**−40** °C to **+60** °C	Open cold chambers and **deep freeze**
PS-CORROSION	**−20** °C to **+45** °C	Washdown and cold rooms to **−20** °C
PS-BATTEN	to **−20** °C	Docks, corridors and ancillary areas

Instant light helps sensors

LED fittings reach full output as soon as they are switched on, with no metal-halide warm-up. That makes presence sensing practical in chambers that are empty most of the time.

Condensation, thermal shock and installation

Doors open, warm moist air rushes in, and water condenses on cold surfaces including luminaires. Plan for that before you hang the first fitting.

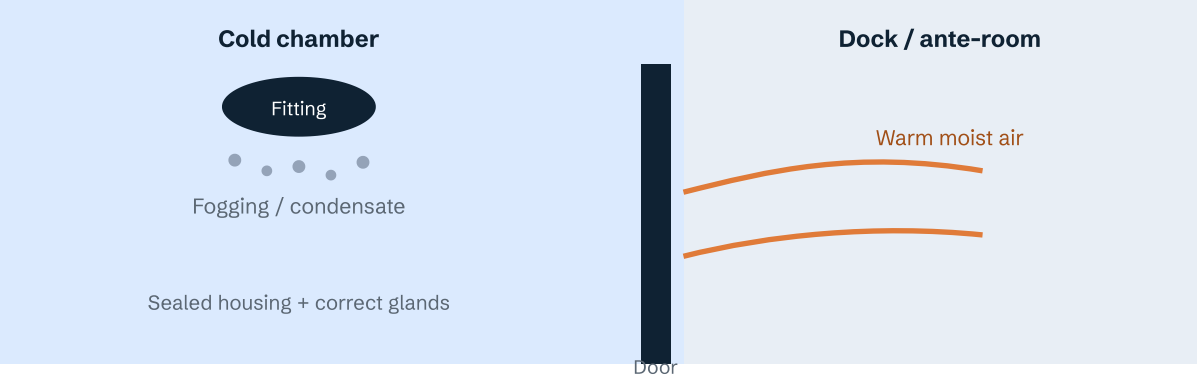


Illustration only. Keep glands sealed, use drip loops where appropriate, and do not leave covers open in humid docks.

- [ ] **Bring fittings to temperature** sensibly; avoid leaving open housings in humid air then sealing frost inside.
- [ ] **Cable glands and entries** rated and tightened for the IP of the fitting.
- [ ] **Drip loops** on cables so water runs away from the entry.
- [ ] **Through-wiring** only where the product is designed for it (for example PS-CORROSION).
- [ ] **Phased or out-of-hours install** so the cold chain keeps running.

Thermal shock

Moving a warm fitting into a deep freeze, or washing a very cold housing with hot water, stresses seals and optics. Follow the manufacturer's install notes for the product you specify.



Chill store lighting on a Polaris Light project.

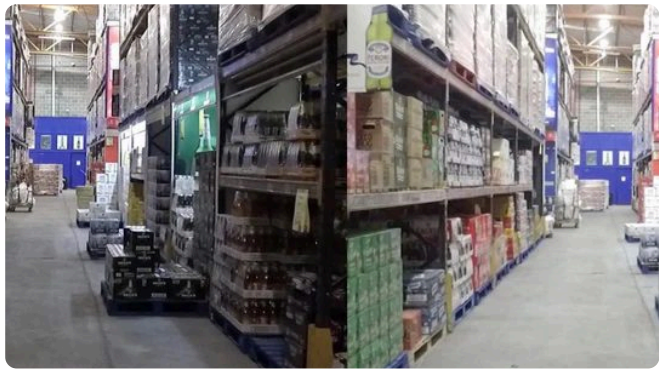
Hygiene and cover materials

Food sites care about cleanability and what happens if a fitting is hit. This guide describes **cover materials only**. It does not claim any Polaris product is food-safe certified, shatterproof certified, or certified to a retailer scheme.

Product	Cover / body materials (from spec)	Hygiene note
PS-UFO-MAX	Die-cast aluminium housing	IP65 sealed high bay for cold stores and open floors
PS-CORROSION	PMMA tube, 304 stainless steel end caps	IP69K washdown for food, drink and wet areas
PS-BATTEN	Aluminium housing, milky polycarbonate diffuser	IP65 sealed batten for docks and corridors



PS-CORROSION: PMMA tube and stainless end caps, IP69K.



Imperial Cash and Carry: PS-UFO-MAX on a Polaris Light project.

Ask your quality team

Your site's food-safety scheme may set rules on glass, diffusers and cleaning chemicals. Share the datasheet materials with them before you order. Do not rely on marketing words such as "food safe" without paperwork your auditor accepts.

Lux levels from BS EN 12464-1:2021

Cold chambers and food warehouses use the same logistics and store values as other indoor workplaces. The figures below are maintained illuminance from BS EN 12464-1:2021, reused from our UK lux levels guide. There is no separate "cold store" row in that guide.

Area or task	Ref.	Em required	Em modified	UGR	Ra
Loading and unloading	13.1	200	300	25	80
Packing and grouping	13.2	300	500	25	80
Open goods storage	13.4	200	300	25	80
Rack storage, floor	13.5	150	200	25	80
Rack storage, rack face	13.6	75	100	None	80
Central logistics corridor	13.7	300	500	25	80
Automated zones	13.8	75	100	25	80
Store and stockrooms	12.1	100	150	25	80

Store and stockrooms: **200** lux required if continuously occupied (BS EN 12464-1:2021 note to ref. 12.1). Em in lux. Full tables and how to measure: polarislight.com/uk-lux-levels-guide/

Design for stock in place

Racking and pallets cast shadows and cut reflected light. Measure and design for the chamber as it is used, not as an empty box.

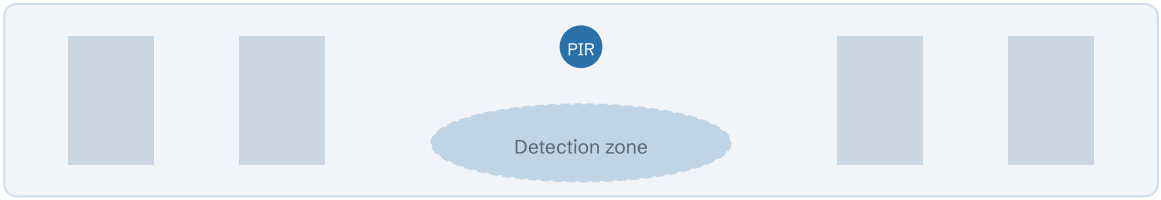
Required Em
Minimum maintained level

Modified Em
Plan for this when modifiers apply

Sensors and controls in chillers and freezers

Many cold zones are empty for long periods. Presence sensing cuts wasted burn hours. Keep the approach **generic**: choose the sensor type that fits the mounting height, ambient and door arrangement on that zone.

- **Presence sensing** so empty chambers dim or switch off.
- **Zoning** by aisle or chamber so traffic in one area does not light the whole store.
- **Daylight** only where docks or offices have useful daylight; not inside sealed freezers.
- **Instant-on LED** so sensors are practical (no warm-up wait).



Example only. Check each product's sensor options and mounting-height limits.

Product	Sensor options on the datasheet
PS-UFO-MAX	Optional plug-in PIR and daylight sensor
PS-BATTEN	Built-in 5.8 GHz microwave presence sensor (max mounting height 4 m on the spec sheet)
PS-CORROSION	Specify controls to suit the washdown area; see the datasheet for dimming options

No single preferred kit

Polaris does not push one sensor brand or system in this guide. Match the sensor to the chamber, then commission hold times so doors and short picks do not false-trigger the whole store.

Energy and heat load

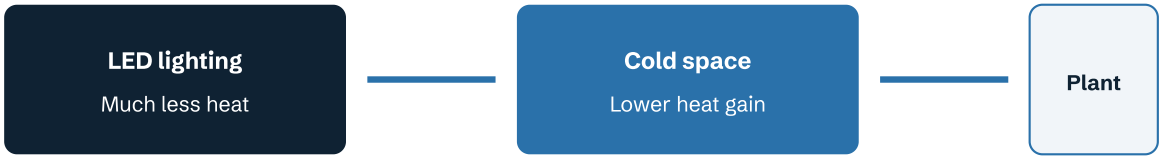
Work out the lighting saving with the same method as any warehouse upgrade. Treat refrigeration as a separate, qualitative benefit.

LIGHTING ENERGY (SIMPLE METHOD)

Number of fittings × watts each **W**	×	Hours per year **h**	×	Tariff **per kWh**	=	Annual lighting cost

Compare existing load with the proposed LED load. Use your own tariff and hours. The LED savings calculator on polarislight.com can help with the lighting-only maths.

Refrigeration heat load



Qualitative only. LED emits much less heat than older lamps, not zero heat.

Lower lighting kWh
Higher lm/W and fewer burn hours

Less heat to remove
Much less heat than older lamps

Fewer lamp changes
5-year warranty at height in the cold

- [ ] Lower lighting kWh from higher lm/W and from sensors in empty chambers.
- [ ] Lower refrigeration heat load because LED emits **much less heat** than older lamps.
- [ ] Fewer lamp changes at height in PPE and cold conditions (lifetime and 5-year warranty).

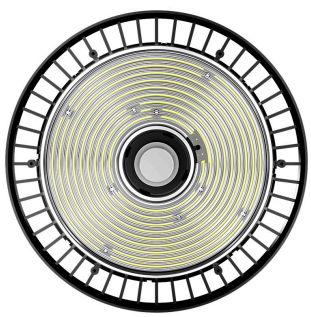
5-year warranty

Every Polaris product carries a 5-year warranty. That matters when access equipment in a freezer is expensive to book.

Polaris products for cold and food areas

Three fittings cover the cold-store scope of this guide. Largest variants are shown. Every Polaris product carries a 5-year warranty.

DEEP FREEZE



PS-UFO-MAX

Largest: **200** W, **40,000** lm, **200** lm/W

IP65 / IK08 · **−40 °**C to **+60 °**C

Optional plug-in PIR + daylight. The deep-freeze high bay in this guide.

WASHDOWN



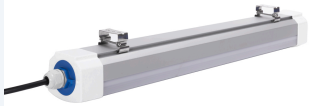
PS-CORROSION

Largest: **60** W, **9,000** lm, **150** lm/W

IP69K / IK10 · **−20 °**C to **+45 °**C

PMMA tube, 304 stainless end caps. Cold rooms and washdown to **−20 °**C, not deep freeze.

DOCKS



PS-BATTEN

Largest: **60** W, about **7,800** lm, **130** to **140** lm/W

IP65 · to **−20 °**C

Milky PC diffuser, built-in microwave sensor. Docks and ancillary areas.

	PS-UFO-MAX	PS-CORROSION	PS-BATTEN
Deep freeze (< −20 °C)	Yes	No	No
Cold room to −20 °C	Yes	Yes	Yes
IP69K washdown	No (IP65)	Yes	No (IP65)

Sources: Polaris product pages and spec sheets; PS-BATTEN low-temperature rating confirmed for this guide (November 2026).

Checklist, projects and next steps

- [ ] Design ambient for each zone written down (chill, freezer, deep freeze, dock, washdown).
- [ ] Operating temperature of every fitting covers that ambient (deep freeze: PS-UFO-MAX).
- [ ] IP and IK suit condensation, washdown and impact.
- [ ] Cover materials reviewed with your quality team (no unverified certification claims).
- [ ] Lux targets from BS EN 12464-1:2021 for each task area.
- [ ] Presence sensing and zoning planned where chambers are often empty.
- [ ] Install method keeps the cold chain running; glands and seals checked.
- [ ] 5-year warranty and access plan for maintenance at height.

Polaris cold-chain and food projects



Farm Foods DC: PS-UFO-MAX with motion and daylight sensors.



Imperial Cash and Carry: PS-UFO-MAX, **100** to **300** lux.

Free cold store lighting survey

Tell us about your chambers, ambients and cleaning regime. We survey the site, design to BS EN 12464-1 and send a proposal with no obligation. Polaris Light supplies and installs.

Every Polaris product carries a 5-year warranty.

CALL US

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Sources

- BS EN 12464-1:2021, Light and lighting. Lighting of work places. Part 1: Indoor work places. Lux table reused from Polaris UK lux levels guide.
- IEC 60529 (IP) and IEC 62262 (IK), public summaries.
- Polaris Light spec sheets and product pages: PS-UFO-MAX, PS-CORROSION, PS-BATTEN (November 2026).
- Polaris Light projects: Farm Foods DC; Imperial Cash and Carry (polarislight.com/projects/).

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