

Prefabricated busbar trunking Canalis®

Technical Guide

Hypermarkets



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Typical layout of

Guide's scope of application

Hypermarket: any building designed to receive customers, with the purpose of selling equipment and services to individuals and professionals:

- > ground sales surface: from 5 000 m² to 12 000 m² with car park,
- > 3 000 to 5 000 food product references,
- > 20 000 to 30 000 non food product references.

The presence and dimension of a food section has a significant impact on the building's electrical distribution needs.



A safe and efficient work and sales area

Hypermarkets are sales areas which concentrate human activity, employees and customers, and goods flows. Such activity requires that hypermarkets have a very high level of safety and reliability. The design, architecture and choice of building materials help maximise well-being and ensure the safety of the establishment.

Hypermarkets are living areas, they change with the years, seasons, customers, products, etc. These trends are materialised by specific interior designs:

- > Appearance of the store,
 - > Lighting, luminosity (possibility of highlighting goods via a change of contrast),
 - > Thermal comfort (heating, air conditioning).
- Localised changes in the sales area must be able to be performed without disrupting commercial activity.

a hypermarket

The sales area is divided into 5 main areas:

①

The sales area

②

The laboratories or workshops

③

The checkouts

④

The offices

⑤

The storerooms/ loading bays



- ① Generator room
- ② Transformer room
- ③ Electric vehicle charging area
- ④ Storerooms
- ⑤ LV switchboard room
- ⑥ Laboratories/Workshops
- ⑦ Hardware/Garden
- ⑧ Storerooms
- ⑨ Drinks
- ⑩ Fresh foods
- ⑪ Clothes
- ⑫ Toys/Sports goods
- ⑬ Household goods
- ⑭ Offices (sometimes over the checkouts)
- ⑮ FMCG
- ⑯ Groceries
- ⑰ Chilled foods
- ⑱ Frozen foods
- ⑲ Hygiene/Beauty
- ⑳ Seasonal goods
- ㉑ Domestic appliances / TV/ Hifi
- ㉒ Checkouts

This breakdown has an effect on the electrical distribution, in terms of both lighting and power distribution.

The sales area is divided into 5 main sectors:

1. fresh foods,
2. fast-moving consumer goods,
3. household goods,
4. hardware,
5. clothes.

The laboratories or workshops are zones where products are made or transformed to supply:

1. the bread counter,
2. the meat counter,
3. the fish counter,
4. ready-cooked meals.

Some workshops are located in the sales area (cheese, catering, etc.).

The storerooms are broken down according to the type of product to be stored:

1. fresh foods,
2. dry foods,
3. chilled foods,
4. frozen foods.

Main electrical distribution



1 Commercial needs of a hypermarket

Guarantee ongoing sales

This can be translated as the need for each utility to operate continuously.

Several examples:

Utilities	Maximum power cut duration	Comments
Checkouts	< 0.1 s	Sales, stock management, image
Refrigeration	15 mn	Food cold chain quality
Background lighting	10 to 30 s	Avoid panic, thefts
HVAC	1 hour	Significant reduction in comfort after 1 hour
Shelves	several minutes	Sales (TV / Hifi, image)

Cost cutting

Owing to the small margins of this sector, much attention must be paid to investment and operating costs. For a fast return on the initial investment, it is necessary to ensure:

- > highly disciplined management of store operating costs,
- > reliable management of the cold chain (to minimise loss).

Standard cost distribution:

Investissement		Operation (consumption + maintenance)	
Structure	29%	Lighting	15.5%
Food reach-in refrigerators	4.4%	Laboratories	13.3%
HVAC (~8 rooftops)	9.3%	Food cold chain	24.4%
Electrical equipment + VDV	12%	HVAC	13.3%
Decoration	5.5%	Information system and checkouts	8.2%
Window displays and reach-in refrigerators	7.7%	Miscellaneous equipment	25.3%
Gondolas	10%		
Checkouts	4.4%		
Other	17.7%		

Retrofitting takes place every 10 years and a major extension every 15 years.

Analysis criteria for developing a dedicated solution

> Reduction in investment costs

- target reduction: - 20 %

- scope of action:

- simplify electrical distribution architecture
- significantly cut back on installation costs
- decrease surfaces occupied by plant rooms
- make costs transparent, broaden competition.

> Simplify on-site assembly and implementation

- significantly cut back on wiring and connections
- use factory-built and standard connection solutions.

> Reduction in operating costs

Simple system Smart Building affording real energy savings (lighting, HVAC, electricity contract).

> Continuity of supply

Distribution architecture considerably increasing continuity of supply and facilitating maintenance.

2 Energy needs of a hypermarket

- > **Have high** quality for much less.
- > **Make sure** there is a good connection to the distribution network.
- > **Protect** against and clear faults to minimise disturbance to the store's business.
- > **Optimise** the energy bill by shedding and monitoring loads.

The energy needs basically depend on:



The choice of energy for heating/air conditioning.



The power required for the food refrigeration and cooling plant.



The required level of lighting.



The type of supply for the baking ovens.

This is why the power required varies from **1000 to 3200 kVA**. This power is normally supplied by two identical transformers.

As far as standby power is concerned, this is provided by two diesel generator sets. The power of these generators is normally the same as that of the transformers. This choice gives the possibility that no normal/standby circuit management is required and enables the hypermarket to be supplied when energy supply tariffs make this necessary.

Hence, in France, the diesel generator sets supply the power during peak tariff periods. This solution also enable continuity of operation to be assured in the event of serious problems with the mains supply. If the diesel generator sets are of a lower power than that of the transformers, the priority circuits are lighting and refrigeration.

The energy needs by area

Areas	Lighting		Electrical distribution	
	Ambient	Special	High power	Low power
Sales area	●	●	●	●
Sales area (laboratories)	●	●	●	
Sales area aisle	●			
Offices	●			●
Storerooms / charger area	●		●	●



Overall architecture of a hypermarket

Hypermarkets are supplied with medium-voltage (MV) power by the electric power supplier. MV distribution to low voltage (LV) is performed by two transformers of identical power. All the hypermarket's functions are supplied at LV via the main low voltage switchboard (MLVSB).

Parallel to the main network is a backup network. It consists of two generating sets of similar power to the transformers. The changeover switches are installed at the MLVSB level.

The backup network ensures continuity of service of the priority functions such as lighting, maintenance of the cold chain, etc. If necessary to relieve the generating sets or protect sensitive applications such as computer and electronic payment systems, UPS systems take over.

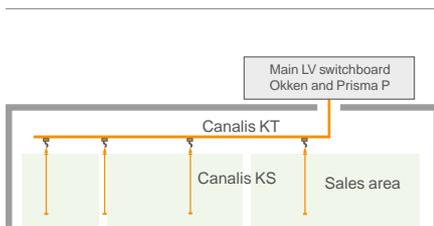
The main circuits to be supplied are:

- > food refrigeration plant,
- > lighting,
- > heating and air conditioning,
- > uninterruptible power supplies,
- > checkout counters and TV/Hi-Fi department.

Electrical distribution concepts

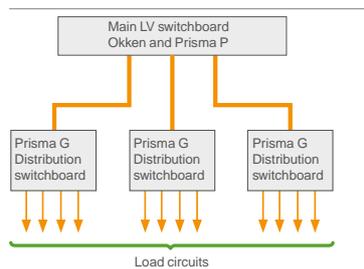
There are three electrical distribution concepts:

1 Decentralised distribution



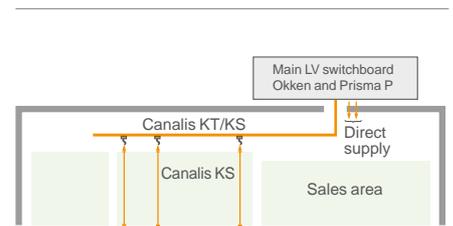
In this case, one or more high power trunking runs (1000 to 2500 A) run through the hypermarket. Each circuit is then supplied from these trunking runs.

2 Centralised distribution



Only the supply to the distribution switchboard is provided from the main LV switchboard. The run protective devices are located in the main LV switchboard.

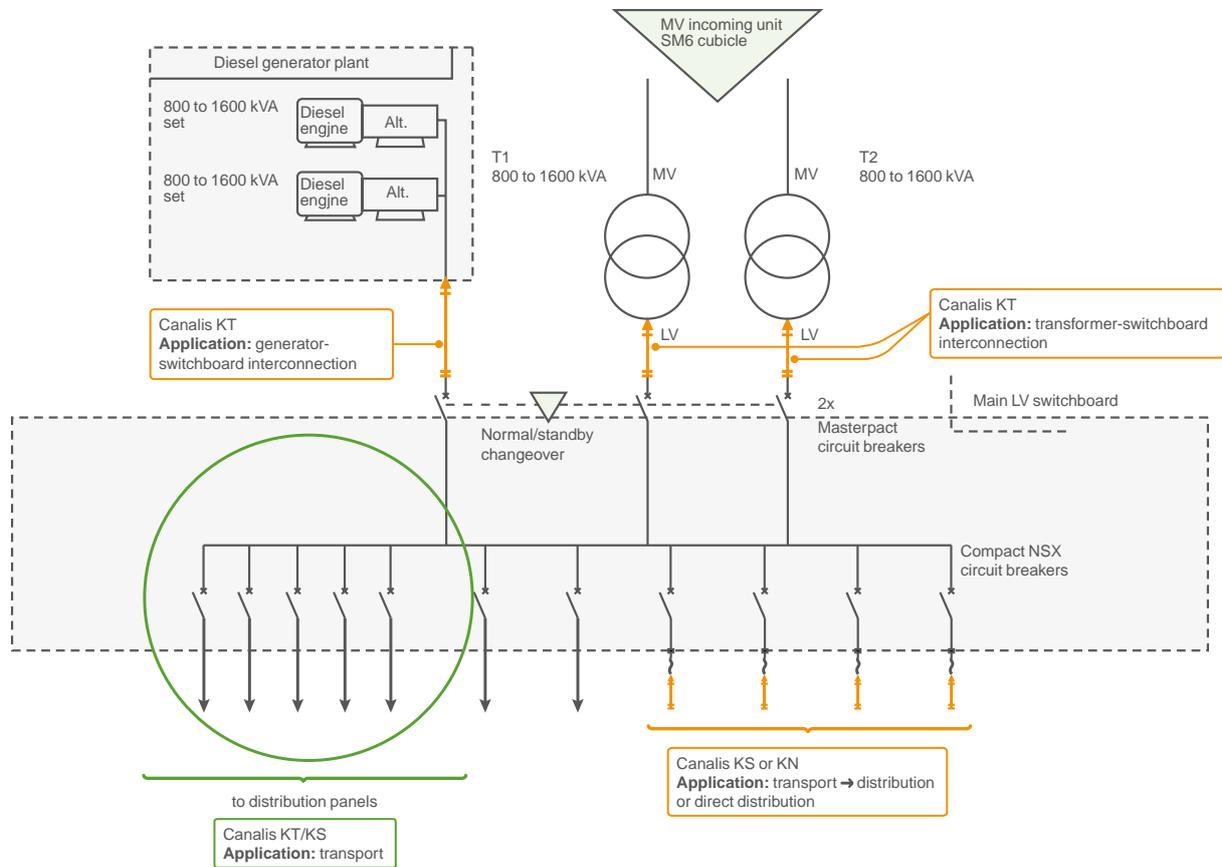
3 Mixed distribution



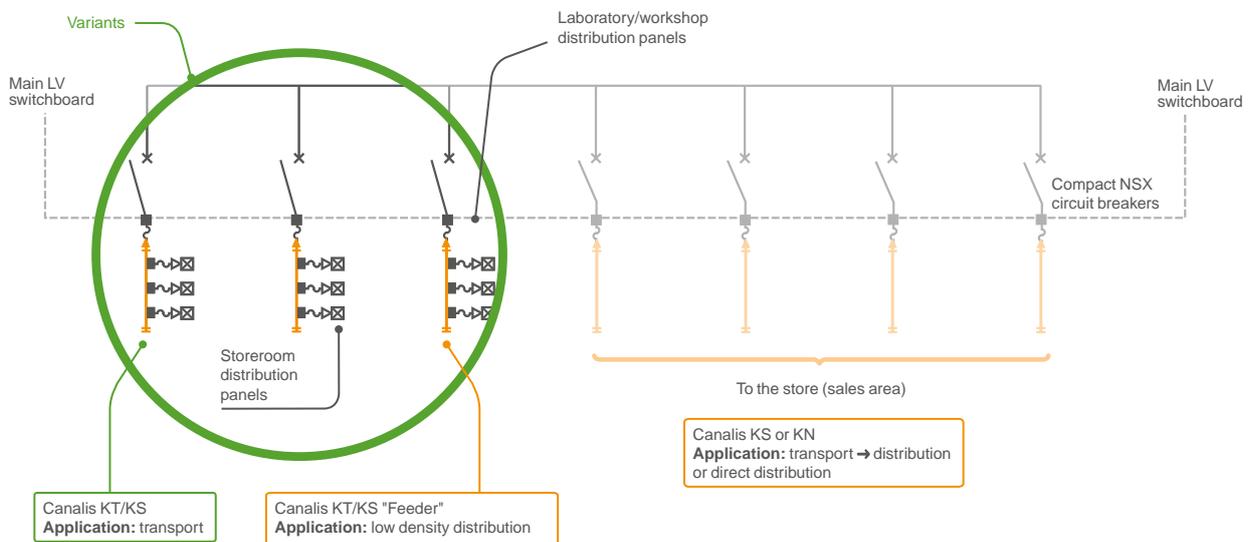
This is a combination of the two previous solutions. This is also the most common solution, which is the main one covered by this application guide.

Example of an **electrical distribution** block diagram

Electrical distribution block diagram



Close-up view of power supply for main low voltage switchboards



Incorporation of prefabricated busbar trunking in a hypermarket. Canalis, the ideal solution

Prefabricated busbar trunking is the ideal solution for the construction or renovation of hypermarkets.

As hypermarkets are open to the public, they are subject to strict regulations to assure the safety of persons, particularly in the event of fire. The operator is therefore very sensitive to the fire performance and the non propagating aspect of the equipment installed.

→ **By construction, all Canalis prefabricated busbar trunking is halogen-free, releasing no toxic fumes and with no propagation of flames.**

Schneider Electric's Canalis prefabricated busbar trunking is based on the distributed architecture concept and offers optimal control of the environment for evolving spaces.



Key aspects

1

Aesthetic harmony of the store

RAL 9003 white or RAL 9001 Canalis products fit in perfectly with the building structure.

2

Energy savings

daptation of lighting areas according to the activity and natural lighting with DALI/KNX dimming and control.

3

Continuity of service

Electrical busbar trunking requires no specific maintenance and make it possible to add and remove loads under voltage.

4

Quality and reliability of the installation

Canalis products comply with IEC 61439-6 international standards, guaranteeing the conformity of the installations and ensuring safety of persons and property.

5

Speed of intervention

Legibility of the installation on drawings and on site: easy identification, clarity of the electrical distribution architecture.

6

Flexibility, scalability and cost control

The decentralised architecture and the Canalis concept offer simplification of organisation and changes in the various areas of the hypermarket and allow electrical distribution to be adapted to needs (quantity of loads, higher power, etc.).

Product life cycle

Simple to estimate

The design of Canalis installations is simple, requiring no knowledge of the precise location, nor the power of the loads to be supplied.

The Canalis concept is perfectly suited to hypermarket shelf space layouts.

Costing of the lighting, heating and distribution functions is therefore very rapid.

Moreover, the flexibility of Canalis makes it possible to invest in present needs without penalising future developments.

Easy to install

The compactness of Canalis facilitates its incorporation in all parts of the building.

Due to the decentralised architecture concept, Canalis can be installed at the same time as the building is built, thereby optimising site works completion times.

Thanks to the lagged differentiation related to the Canalis architecture, new requirements can be allowed for without adversely affecting installation time.

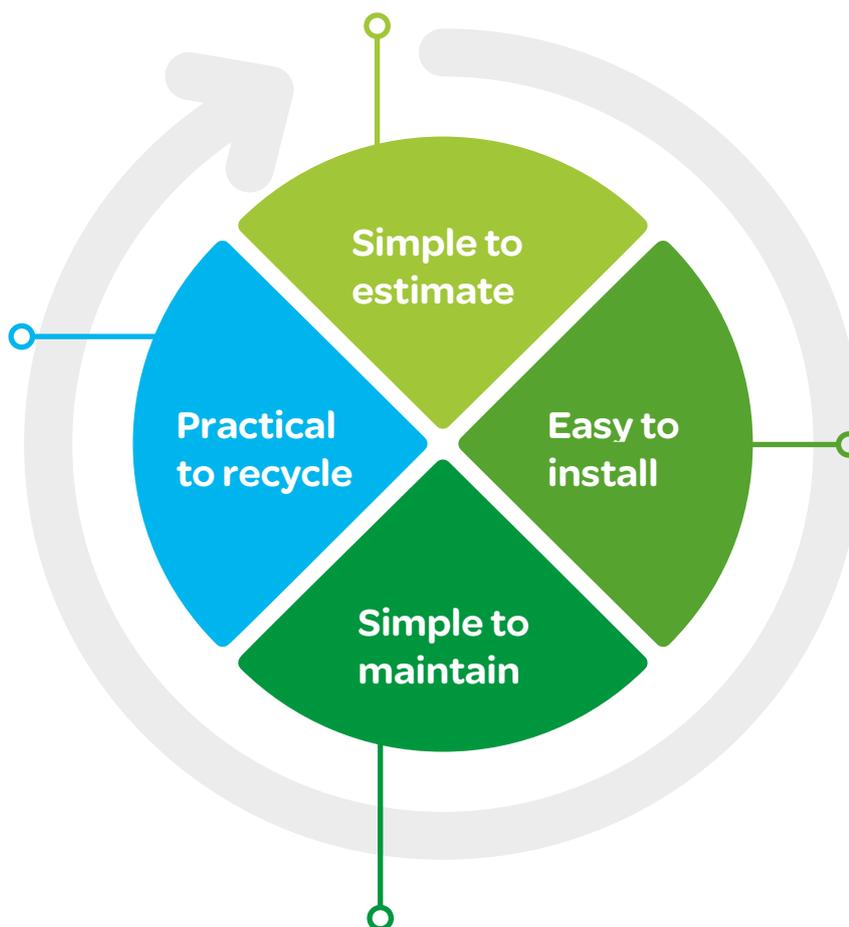
Cost control

Canalis products are tested in factory, thereby ensuring a very high level of quality on site and considerably improving the success rate of end-of-work acceptance.

Practical to recycle

In the past 10 years recycling has become a major industrial issue. The composition of the Canalis product range ensures a 95% recycling rate.

But the Canalis product offering goes further. For the restructuring or enlargement of a facility, the products can be dismantled and reinstalled in their new environment with great simplicity.



Simple to maintain

Canalis busbar trunking requires no maintenance on the contacts.

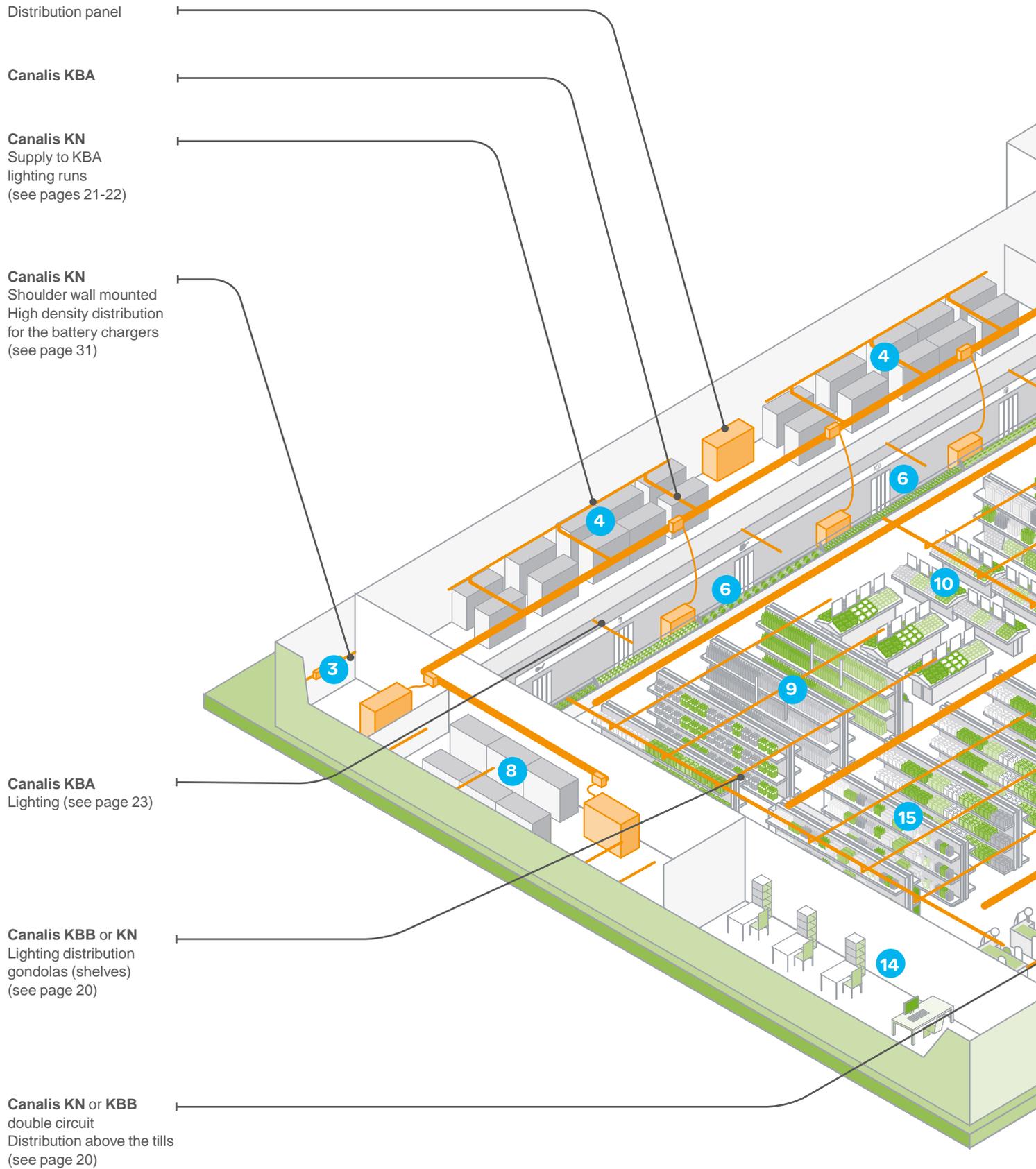
The great clarity of the Canalis architecture simplifies maintenance and upgrading of hypermarkets:

- > Replacement of a freezer, development of a fair area, addition of checkout counters, etc.
- > Addition/elimination of a load under voltage.
- > Disconnection of an area without risk for the adjacent areas.

Decentralised distribution ensures continuity of service; combined with a 100% backup network or not, the essential functions are ensured:

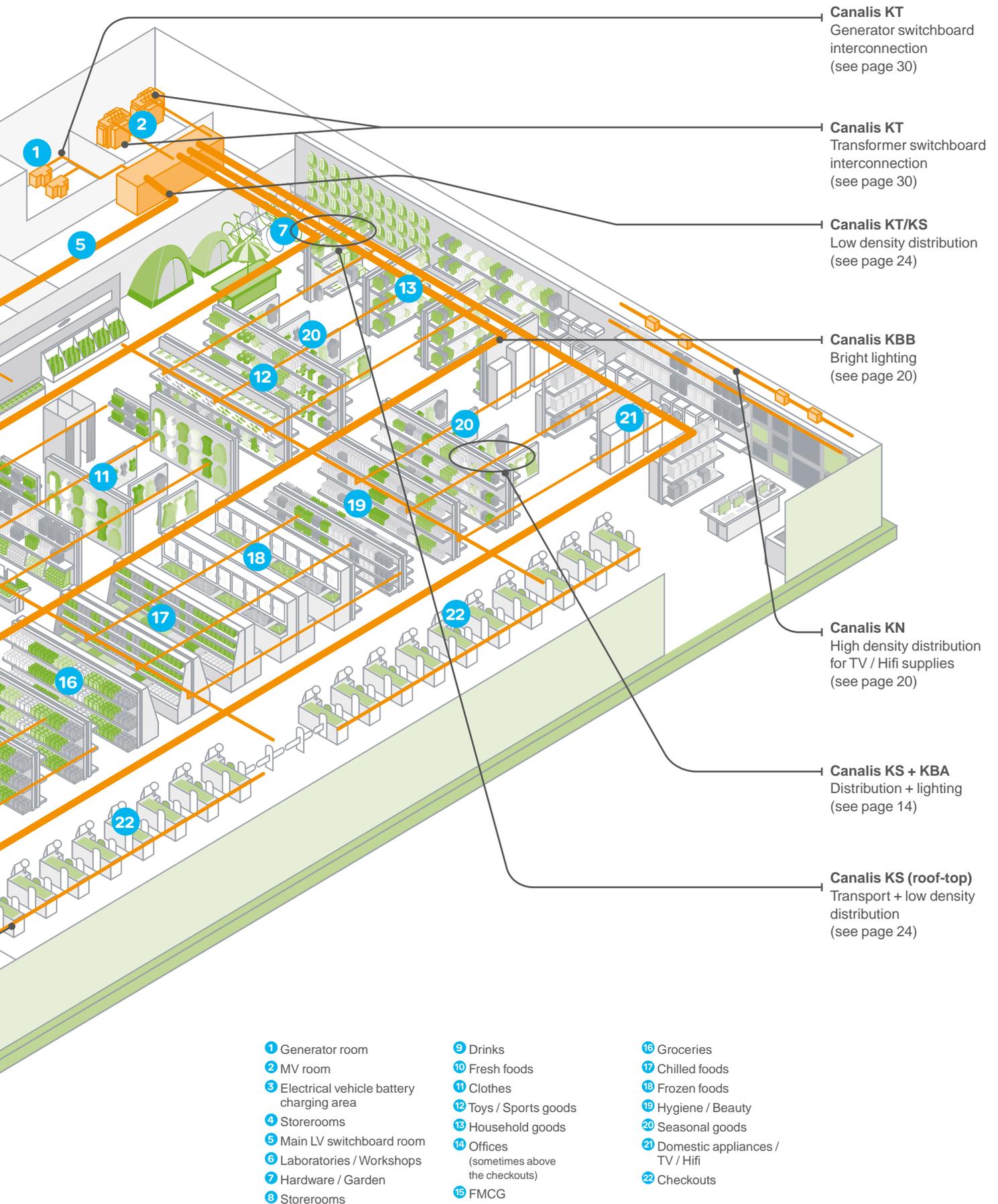
- > Maintenance of the cold chain;
- > Checkout counters, invoicing system;
- > Movement and evacuation of the premises.

Layout of prefabricated busbar trunk



→ For technical information about Canalis offer, see part 4 "Products Best in Class".

ing in the various hypermarket areas



Electrical distribution for lighting



Purpose of lighting



Assure, both qualitatively and quantitatively, lighting which encourages sales.



Adapt the intensity of lighting to the sectors and the different hours.



Monitor and use daylight.



Optimise energy costs.



Respect the appearance of the store.

Technical needs and commercial needs

Implement the store's commercial policy

The basis of the lighting policy of a store is the following:

- > background lighting,
- > emphasis lighting,
- > service lighting,
- > energy management.

Ensure the safety of persons

- > Indicate and mark
- > Prevent people from panicking if there is a power failure
- > Avoid maintenance at a height.

Minimise operating costs

- > Lighting accounts for **up to 30 %** of the electrical energy used
- > Areas with dimmed lighting when there are no customers (maintenance, loading, stock-taking)
- > The lighting load **cannot** be shed but it is adjustable.

A few figures

The power required for lighting is approximately 1/3 of the total power consumed.

For a hypermarket the power needed for lighting is between 500 and 700 kW.

Summary table on hypermarket lighting:

Power for lighting = 1/3 total power consumed	
Sectors	Percentage of the power used for lighting
Sales area	20 %
not including the aisles	
sales area aisles	17 %
Checkouts / various displays	15 %
Storerooms / battery charging	15 %
Laboratories/workshops	10 %
Offices	1 %
Car park / signs / walkways	22 %

Sales area lighting

Lighting of the sales area of hypermarkets is a complex issue because it has an impact on the general atmosphere of the store.

To facilitate customers' purchasing behaviour as well as possible, lighting engineers have distinguished between two types of lighting for the sales area:



Ambient lighting

Its function is to light the sales area with a uniform level of lighting. For hypermarkets, lighting design is carried out without taking into account the position of the gondolas and other fixtures and fittings. The luminaires are therefore uniformly distributed. To comply with lighting uniformity, the luminaires are positioned very high.

This solution gives the benefit of modularity of layout of the sales area.

If uniform ambient lighting is the rule, it is nevertheless true that lighting specialists are beginning to study the possibility of lighting the store according to the position of the gondolas (display shelves).

If this trend is confirmed, busbar trunking will enable the lighting to be adapted and the luminaire positions to be changed according to the position of the gondolas.



Special lighting

This type of lighting is used to highlight certain products such as fruit and vegetables, frozen foods, fresh foods, etc.

The level and type of lighting are matched to the products to be highlighted and the means used to present them (various gondolas, refrigerated display units, stalls, baker's shelves, jewellery cabinets, etc.).

These emphasis lighting fixtures must be able to be illuminated separately from the background lighting. To obtain a contrast effect, background lighting above reinforced areas can be eliminated.

Level of lighting in the sales area

Hours	Level of lighting	
	with ambient lighting	if special lighting
Opening hours	From 600 to 1 200 lux depending on the country (e.g France = 1 200, Spain = 800)	Up to 1 600 lux
Outside opening hours	300 to 600 lux	1 600 lux (only during test periods)

Example of powers required for ambient and special lighting in the different zones

Sales area sectors	Power	Floor area	Ratio
	(kW)	(m ²)	(W/m ²)
Food aisle	60	3160	19
Non food aisle	83	4350	19
Fast-moving consumer goods	50	2180	23
Fresh foods	76	2500	31
Hardware	46	2110	22
Household goods	31	1250	25
Clothes	58	2480	23
Total	404	18 030	23

Example of powers required for special lighting

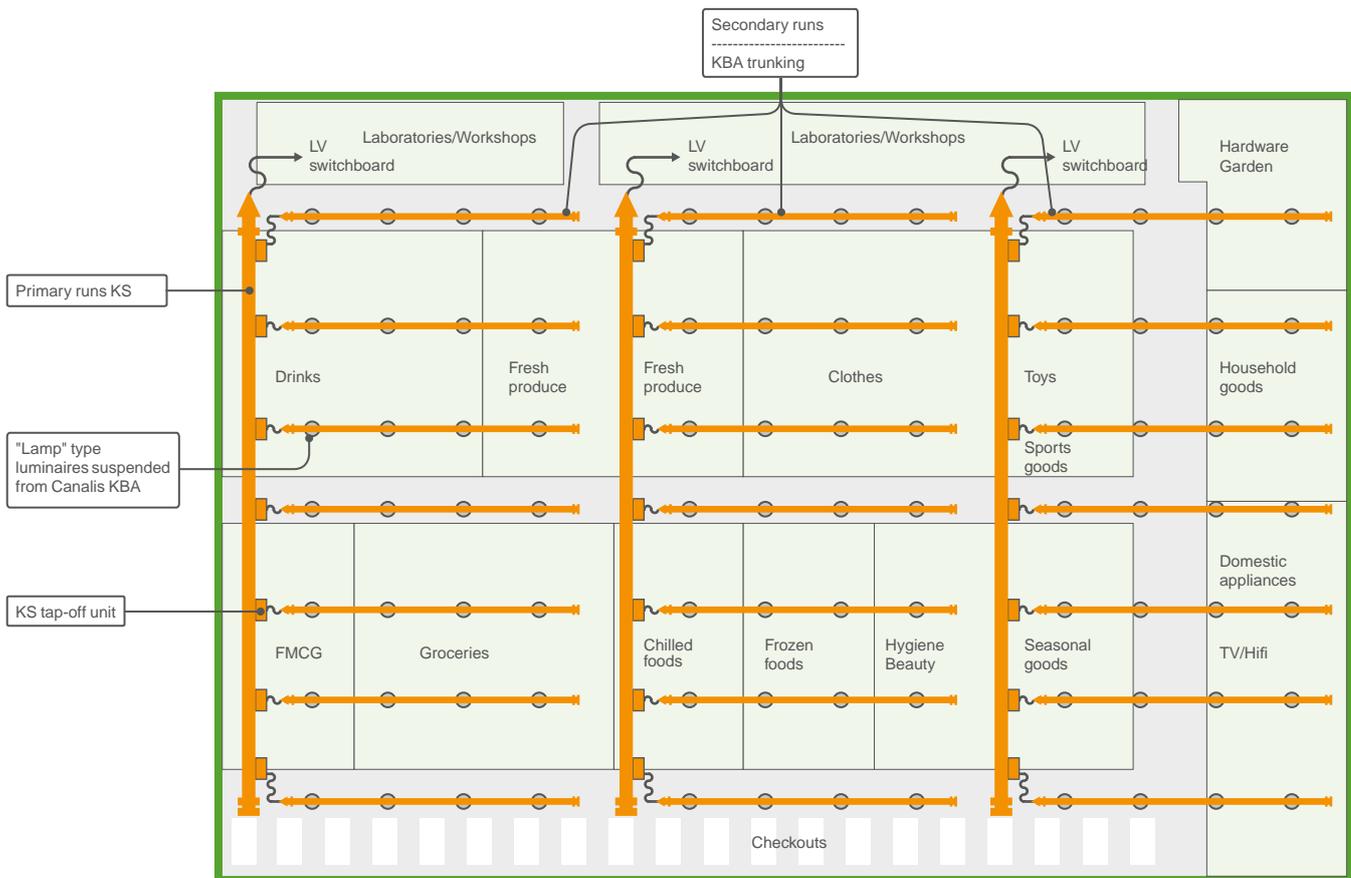
Sales area sectors	Power (kW)
Fresh foods	30
Fast-moving consumer goods	4
Clothes	6
Household goods	16
Hardware	5
Total	61

1 Implementation of ambient lighting

Irrespective of the type of luminaire (with fluorescent tubes or lamps) they will be supplied from the Canalis runs referred to as "primary" runs. These runs are provided in KS or KN trunking (the choice between KS and KN being made according to the current required and hence the level of lighting).

These "primary" runs supply "secondary" runs which use Canalis KBA/KBB. The luminaires are suspended from the Canalis KBA/KBB. The secondary runs are normally perpendicular to the gondolas. There are normally 3 primary runs. As far as the secondary runs are concerned, their number is closely linked to the brightness of the lighting selected and the type of luminaire.

Example of a basic solution for providing ambient lighting



The basic solution described previously does not meet all the needs, in particular those regarding:

1. adaptation of the luminosity to the different sectors and the different times,
2. monitoring and use of daylight,
3. control of energy expenditure.

To meet all these needs, Canalis Busbar Trunking will be used in conjunction with the DALI concept.

This complete solution for lighting provides:

1. distributed electrical distribution using Canalis busbar trunking,
2. protection and control of lighting runs,
3. interoperability with the technical management of building (Building Management System).

Globally:

Needs	Functions provided by DALI + Canalis
Energy savings	Adaptation of the level of lighting according to: <ul style="list-style-type: none"> - a time programme - the presence of natural light or not - the possibility of creating different zones
Personalisation, flexibility, evolutivity of the sales area	Local or centralised controls. Possibility of creating and modifying areas according to changes in the sales area.
Safety	Automatic illumination in case of faults. Cascade illumination.
Savings in maintenance	Counting the operating time of the luminaires Troubleshooting assistance
Convenience	Time-delayed local restarting.

1 Implementation of ambient lighting (cont.)

Principle of operation

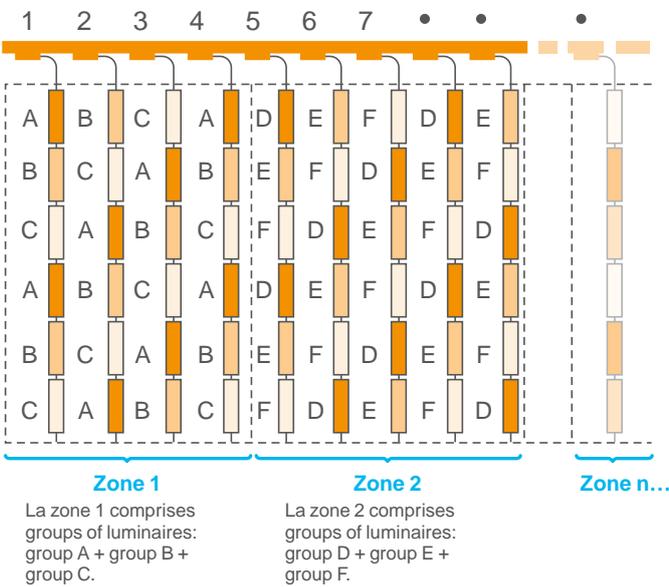
The DALI concept is based on dividing the sales area into homogeneous **zones**. Homogeneous zones are those parts of the store which meet the same criteria in terms of:

1. level of lighting for each time period (store open and closed),
2. control of the lighting runs.

The zones are then divided into groups.

A group corresponds to a set of luminaires controlled simultaneously, for both switching on and switching off. These zones will then be controlled according to a predefined programme. The programme can be used to control all or part of the luminaires in the zone. Each zone is controlled independently.

Lighting with DALI



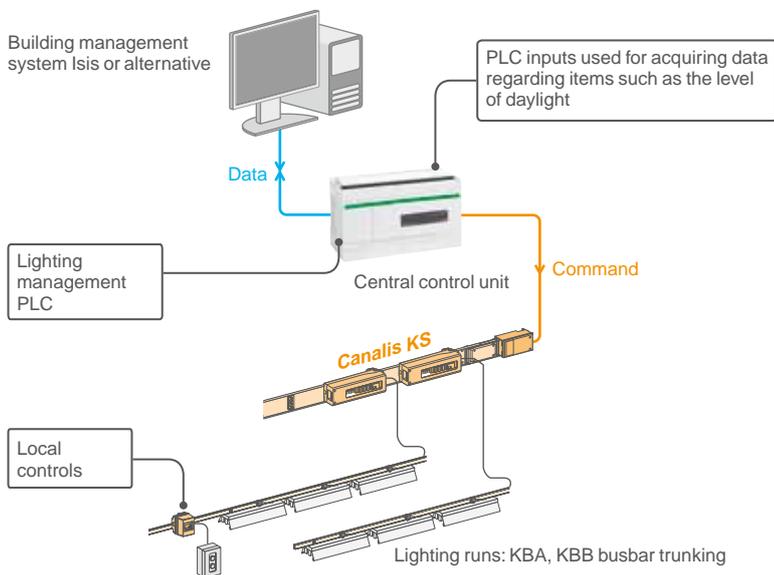
In the opposite example, the system not only enables independent control of each zone, but also the adaptation of the lighting level in thirds (by switching the luminaires one group at a time).

This means that luminaires A in zone 1 can be switched on during cleaning, while all the luminaires of the zone can be switched on during normal opening hours. It is therefore possible to switch on 1/3, 2/3 or 3/3 of the luminaires in each zone.

The sales area would normally be divided into 5 to 7 zones:

1. aisles,
2. fresh food sector,
3. fast-moving consumer goods,
4. household goods,
5. hardware/clothes.

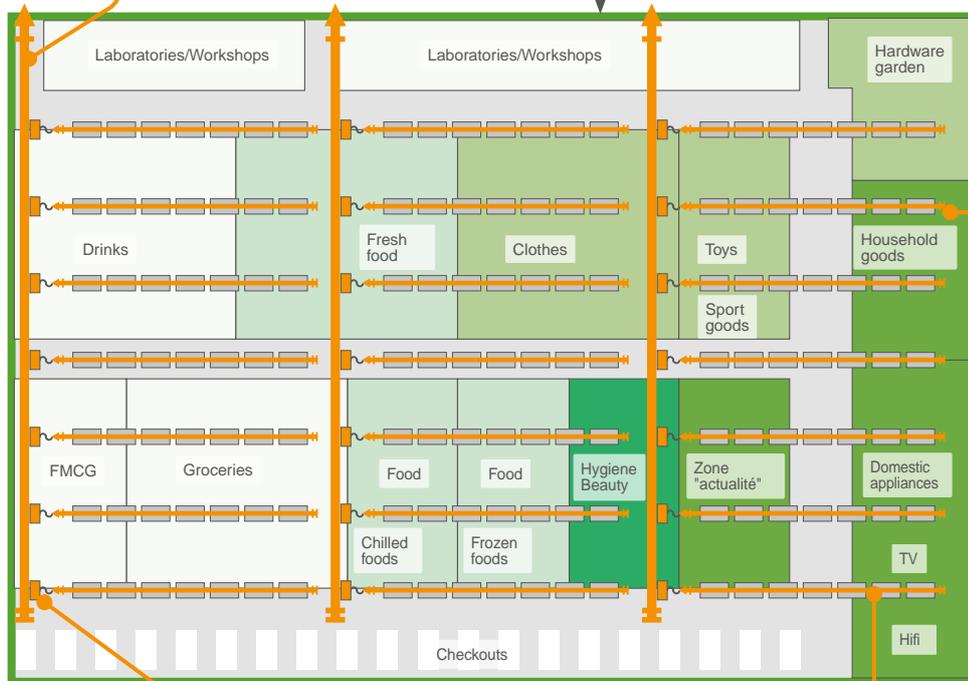
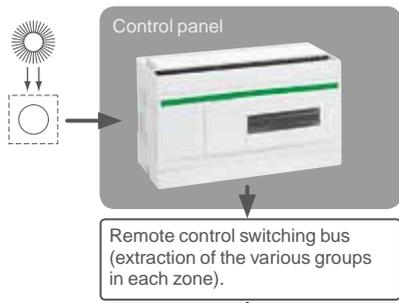
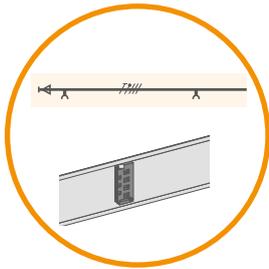
Architecture for lighting management



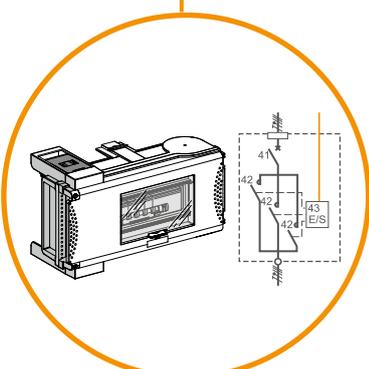
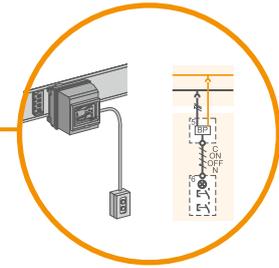
Sales area lighting with lighting management (DALI)

- Zone 1:** Shopping aisles
- Zone 2:** Fresh food
Other food
- Zone 3:** Household goods
- Zone 4:** Hardware/
Clothes
- Zone 5:** Hygiene Beauty/
Toys
- Zone 6:** Fast-moving
consumer goods

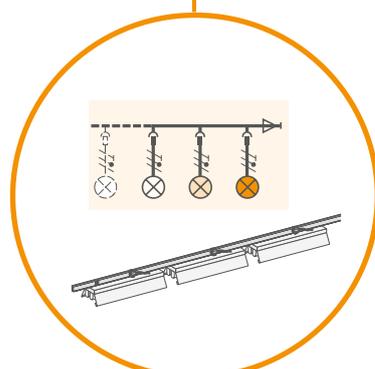
Main supply:
Canalis KN or KS



Local control



Tap-off unit:
Control and protection of the various lighting runs



Lighting run:
KBA/KBB with luminaires

2 Implementation of special lighting

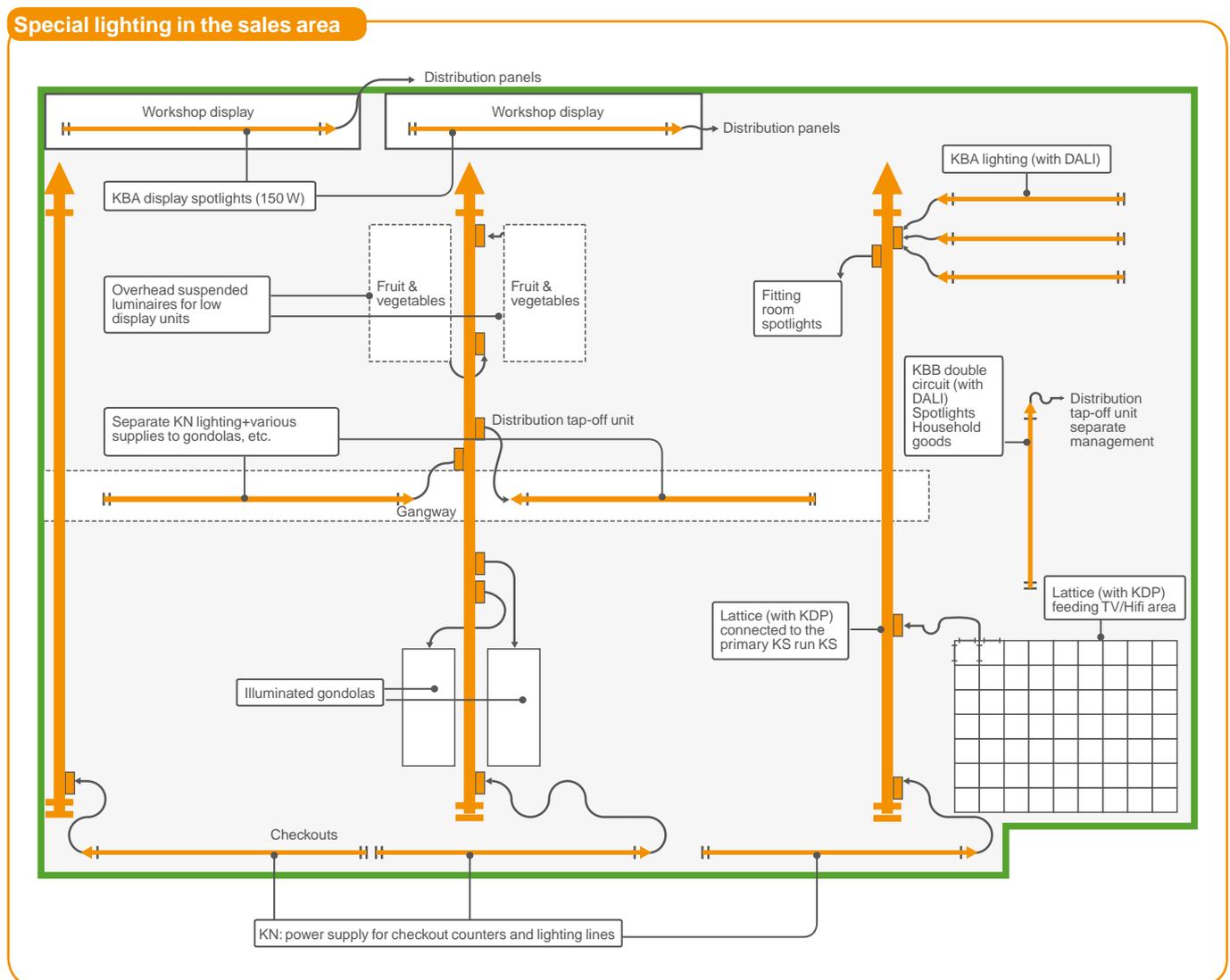
Principle of operation

To meet the need for special lighting the luminaires are supplied directly from the primary runs feeding the ambient lighting or by dedicated busbar trunking. **The advantage of using the primary ambient lighting runs is to be able to control this lighting via the DALI.**

In practice, there is a mix of the two solutions.

In terms of special display lighting equipment, there are:

1. gondolas with built-in lighting,
2. spotlights for fitting rooms,
3. "lattices"⁽¹⁾ with built-in fluorescent tubes,
4. suspended overhead luminaires, etc.



(1) See glossary page 41

Storeroom lighting

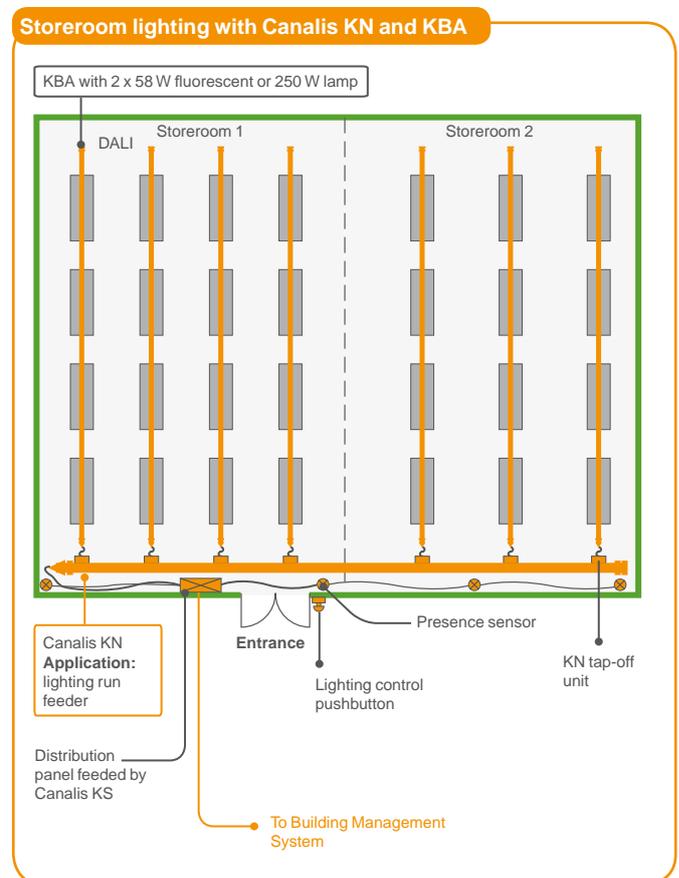
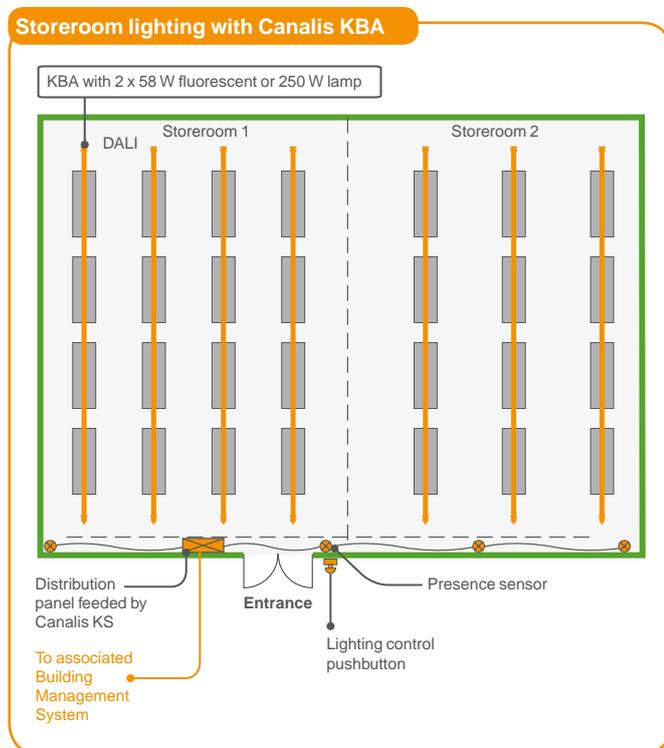
Storeroom lighting is much more simple than that for the sales area. Only one level of lighting is required, but use of zoning⁽¹⁾ may be necessary.

Needs

- > The lighting level in storerooms varies from 250 to 500 lux according to the country. This lighting is normally provided by industrial type reflectors equipped with 2 x 58 W fluorescent tubes or by lamp type luminaires with 250 W lamps.
- > The storerooms are often divided up into several zones: the storerooms themselves and the aisles and access areas.
- > Lighting management is often required, in particular to avoid the lighting remaining on when no-one is present.

Implementation

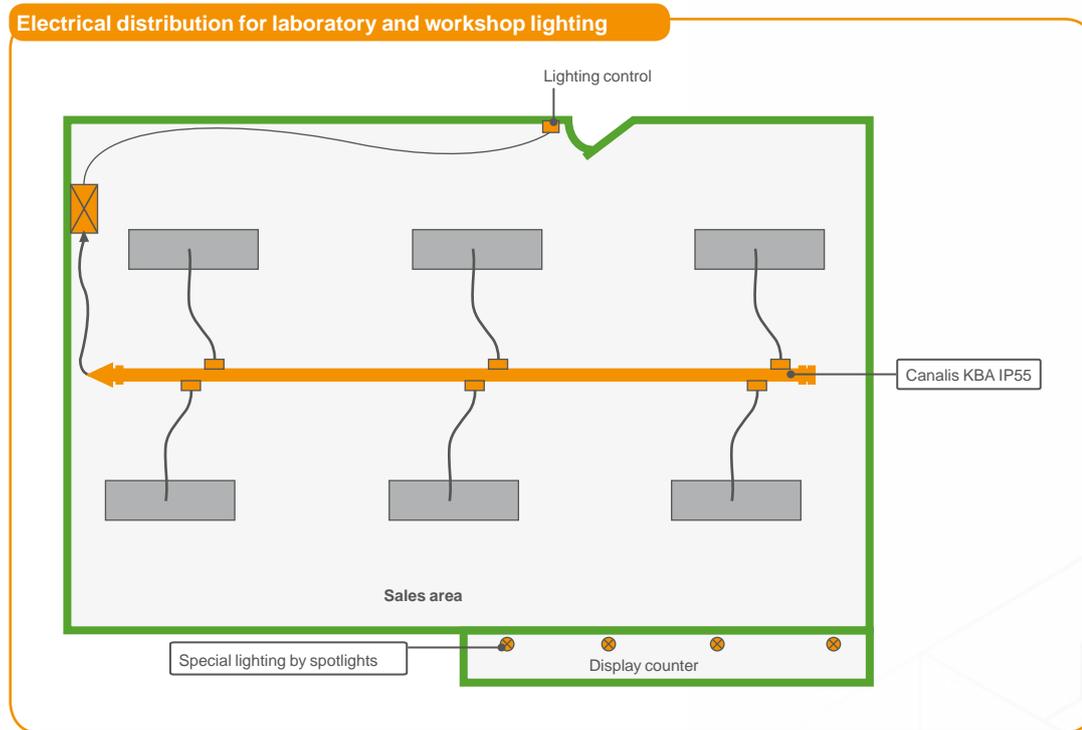
- > The busbar trunking used for storeroom lighting is normally Canalis KBA. Supply to the runs is provided from a distribution switchboard located in the storerooms. This supply may be direct or via KN feeder type busbar trunking.
- > Lighting in the aisles and access areas is enabled by the centralised management system and is effective when a pushbutton is actuated. Lighting of the storerooms themselves is controlled via a presence sensor with time delayed switch-off.
- > Lighting management is provided by DALI in conjunction with the building management system⁽¹⁾.



(1) See glossary page 41

Laboratory and workshop lighting

Lighting is obtained by dust and damp protected luminaires equipped with 2 x 58 W fluorescent tubes. Because of the specification of these luminaires, the trunking required will be the KBA offer (IP55 as standard).





Electrical distribution system of the hypermarket



Electrical distribution for sales area

This mainly concerns four areas:



The complete area for heating and air conditioning.



The promotional and seasonal zone or zones.



Domestic appliances TV / HiFi.



Refrigeration and deep freeze banks.



The checkouts.

1 Distribution for heating and air conditioning

The electrical power required depends on the type of energy selected for the production of heat and for cooling (where air conditioning is required).

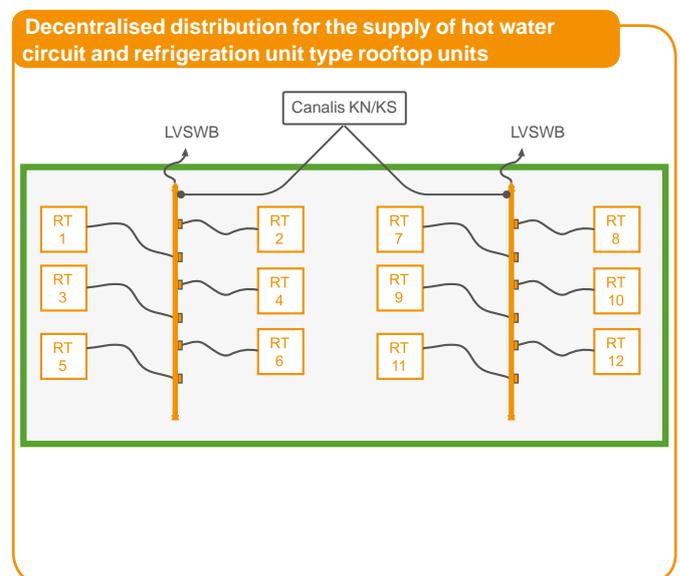
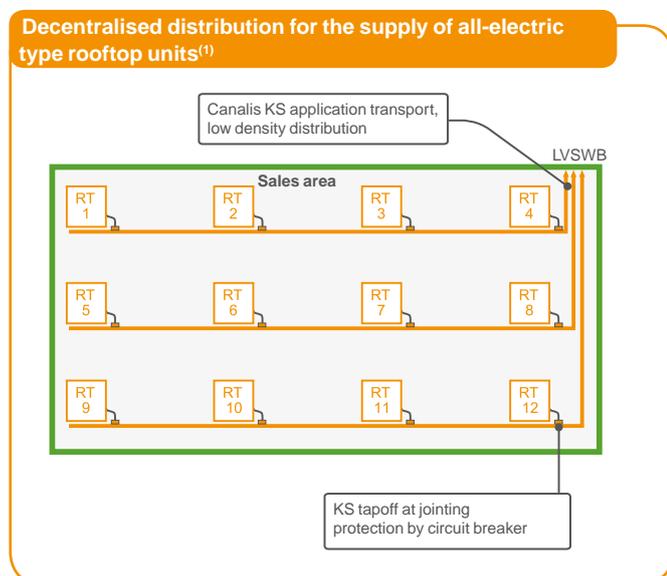
Rooftop units (located on the roof of the hypermarket) diffuse the conditioned air throughout the sales area and can operate with the following types of system:

1. a hot water circuit and a cold water circuit,
2. a hot water circuit and a refrigeration unit for cooling,
3. all electric.

The number of rooftop units varies considerably according to the climate of the country.

Example: need 16 roof-top units for a floor area of 10 000 m².

Electrical power required by one rooftop unit		
Type of rooftop unit	Power	Associated busbar trunking
With a hot and cold water circuit	3 to 4 kW for the fans and regulation supply	KN
With a hot water circuit and refrigeration unit for cooling	6 to 10 kW	KN if fewer than 6 rooftop units per run. Above this: KS
All electric	20 to 100 kW	KS/KT, depending on the number of rooftop units per Canalis run



(1) See glossary page 41

2 Electrical distribution for promotion and seasonal display areas

Busbar trunking is used to provide additional power supplies as required according to the commercial needs.

As the power required for this type of application is low (< 40 A), Canalis KBA is normally used. These applications require differential protection of the complete run. For higher power needs, KN trunking would be used.

3 Electrical distribution for household appliances, TV, Hi-Fi

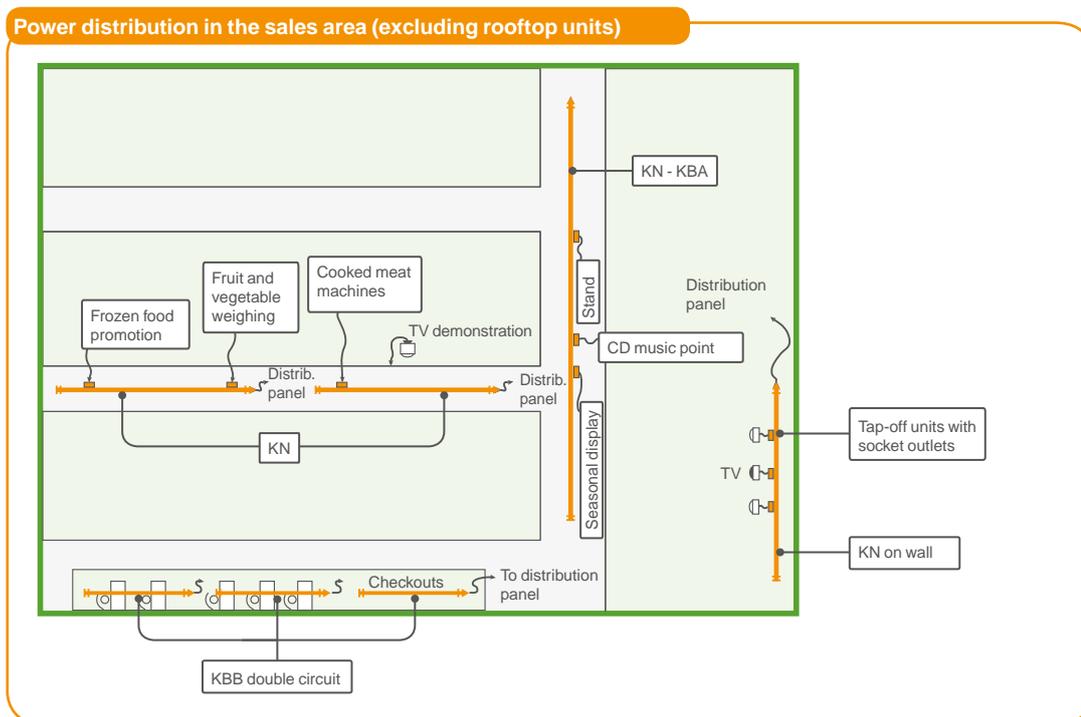
Here, the need is to provide a supply to TV sets and hifi systems on display. To meet this need, Canalis KN is used mounted on a shoulder wall behind the equipment to be supplied. The equipment to be connected is normally supplied via tap-off units equipped with socket outlets and Acti 9 circuit breaker with 30 mA differential breaker. The supply to the Canalis KN is either from the distribution switchboard or from the main feeder.

4 Electrical distribution for refrigeration and deep freeze banks

Power supply takes place via KN or KNT type lines, sill-mounted, equipped with connector tapoff units. Via their communication bus, the KNT lines can transmit consumption information from the refrigeration banks to an overall management system.

5 Power distribution for the checkouts

There is also a need for electrical power for the checkouts. Here, the use of Canalis KBB enables the provision of two independent circuits: a normal circuit for the conveyor belt and signalling, and a circuit with backup supply for the bar code reader, cash register, anti-theft detection.



Electrical distribution by subdistribution boards

With the exception of the sales area, the distribution switchboards are located as near as possible to the energy demand:



The laboratories / workshops.

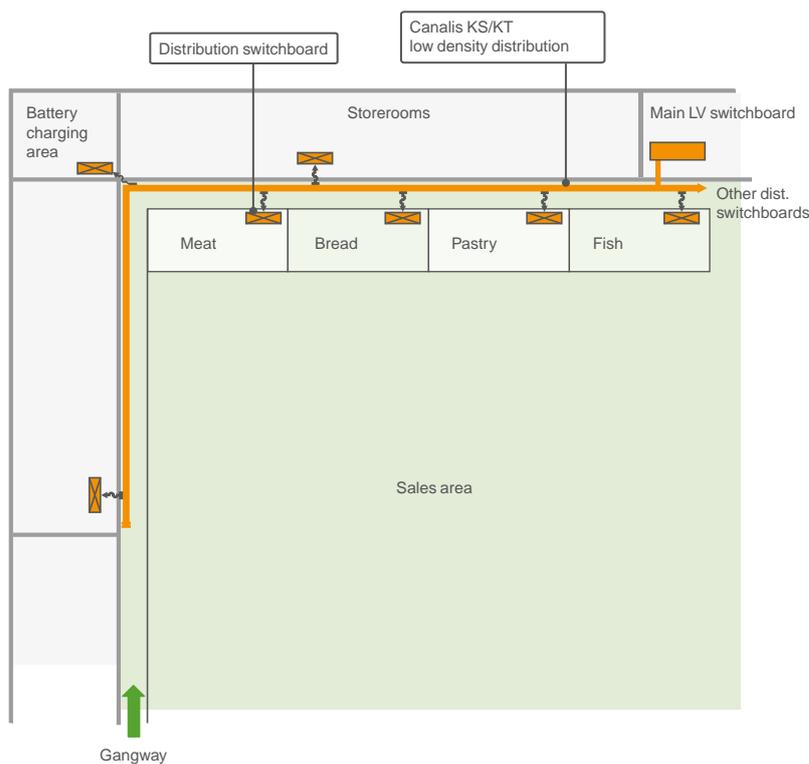


The battery charging area, etc.

For reasons of convenience and safety, electrical distribution for the sales area is ensured by subdistribution boards installed on the edge of the area.

The choice of a distributed architecture via prefabricated busbar trunking reinforces the concept of protection very close to the loads and part of the building environment.

Principle of decentralised distribution to the distribution switchboards

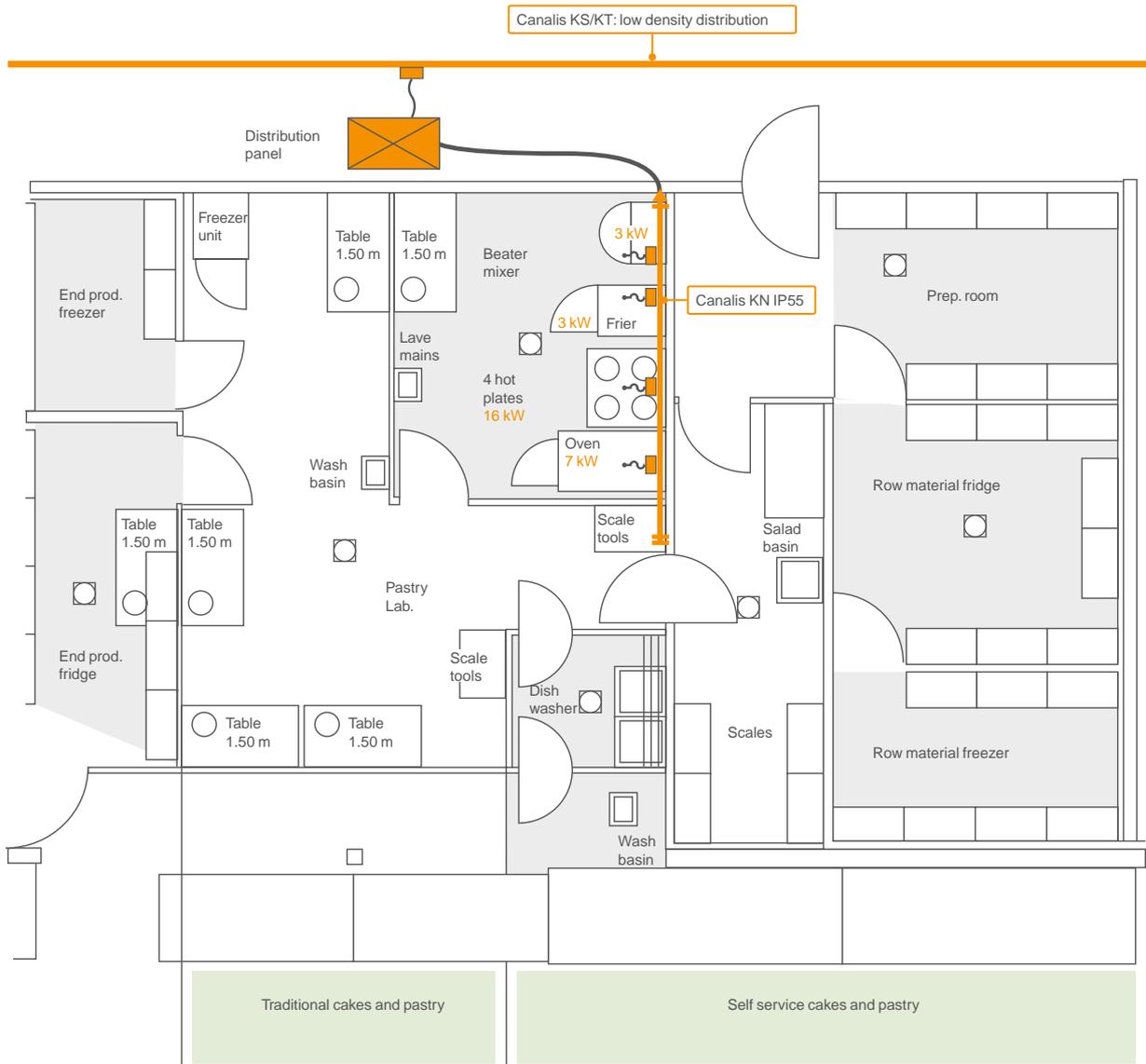


1 Electrical distribution for laboratories/workshops

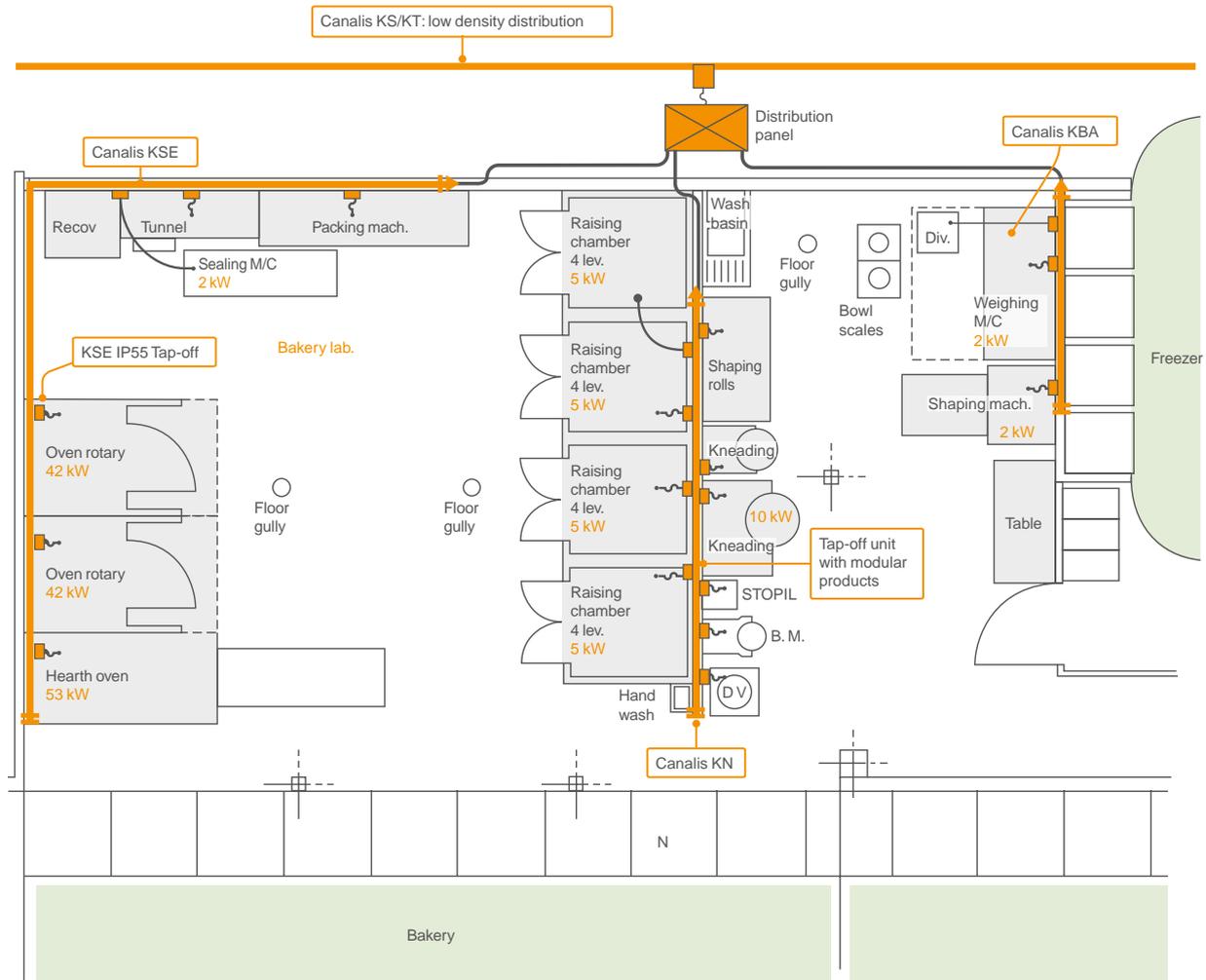
The laboratories and other workshops are supplied from the distribution switchboards, which are themselves connected to low density busbar trunking (KV or KT). For distribution within the laboratories and workshops, busbar trunking for high density distribution is required (KN or KS). IP55 degree of protection is necessary.

Laboratories/workshops	Loads	Power
Meat counter	mincer – slicer – beater/mixer – saw	15 kW au total
Bread/pastry counter	oven – kneading machine – shaping machine – packaging machine – beater/mixer	100 to 250 kW
Other applications	hot plates – spit roast – oven	50 kW
Total		170 to 300 kW

Principle of power distribution in the laboratories and workshops 1



Principle of power distribution in the laboratories and workshops 2

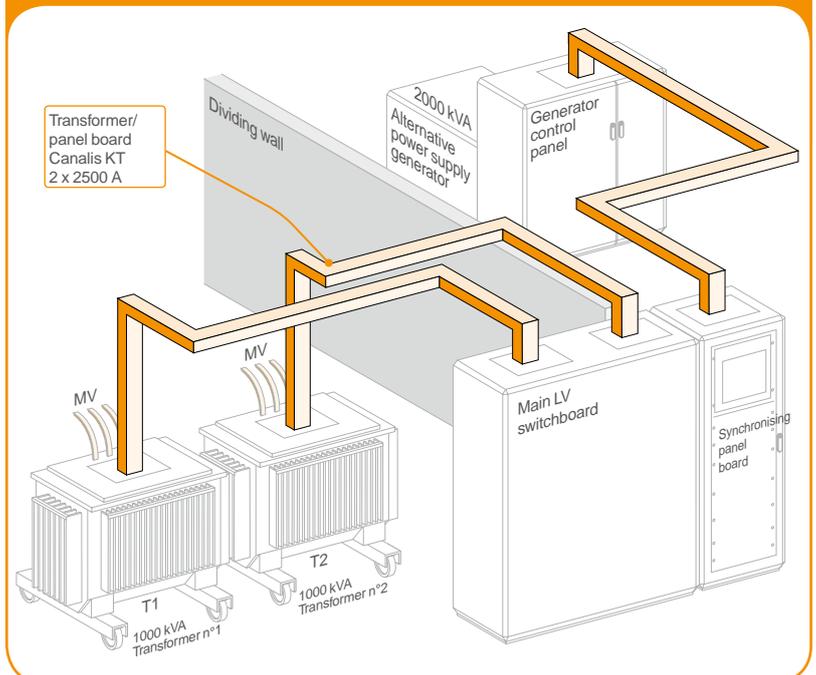


Transformer/switchboard and generator/switchboard interconnections

Technical characteristics known in advance, ease of installation, short-circuit withstand are the many advantages resulting from the choice of busbar trunking for transformer/switchboard and generator/switchboard interconnections.

For these short interconnections and bearing in mind the current ratings involved, Canalis KT would be used.

Principle of a transformer/switchboard interconnection

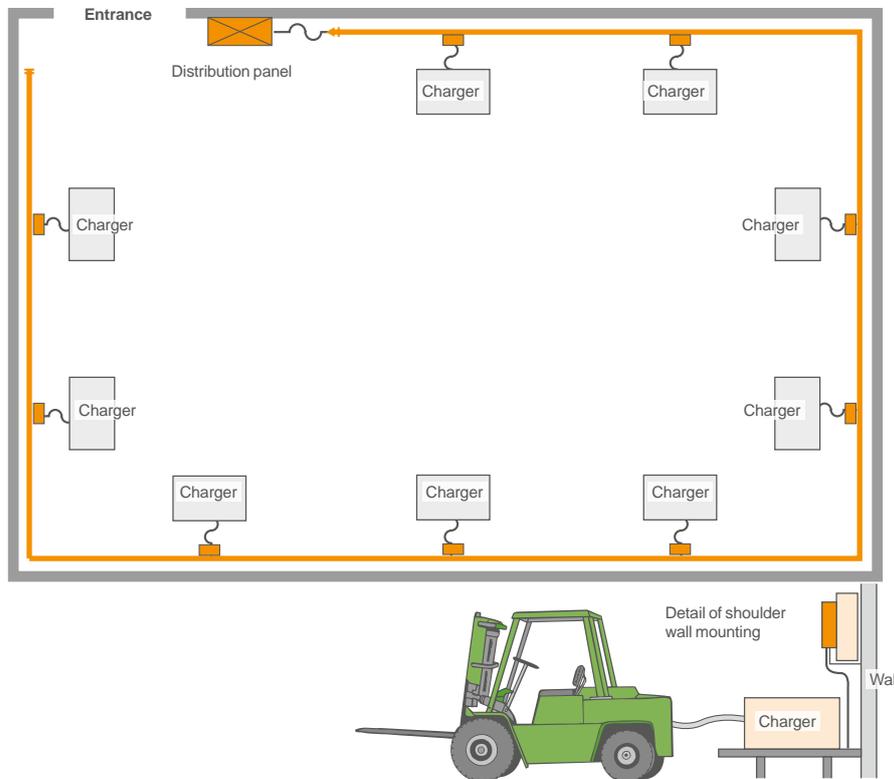


2 Power distribution for the battery charging area

It is in this area that the batteries of the fork lift trucks and other electric vehicles are charged.

Busbar trunking mounted on a shoulder wall is used to supply the chargers. The tap-off units used are for modular products. They are equipped with 30 mA differential type Acti 9 circuit breakers. Several chargers can be supplied from a single tap-off unit. The busbar trunking used is normally type KN or KS and supplied from the distribution switchboard located in the room.

Power distribution for the **battery charging area**





Products "Best in Class"



Lighting products

Canalis KDP: busbar trunking for lighting and low-power loads



Nominal current 20 A

Degree of protection IP55

2 or 4 live conductors

Tap-offs every 1, 2 metres or 3 metres

Tap-off connectors: 10 and 16 A

Packaged in a reel

Canalis KBA and KBB: busbar trunking for lighting and low-power loads



Canalis KBA with KBL

Nominal current 25 or 40 A

Degree of protection IP55, halogen-free, RoHS-compliant, sprinkler test certified

Number of live conductors: 2 to 4 for KBA and 2 to 8 for KBB

Length of sections: 2 and 3 m

Straight elements, RAL 9003, with trapdoors at regular intervals (from 0.5 m to 1.5 m)

Flexible sections

Tap-off connectors: 10 and 16 A

Maximum distance between fastening points: 3 m for KBA, 5 m for KBB

Cable trays and fastening accessories for low current

Control bus

Canalis KBL industrial light fittings

Power: 2 x 49 W, 2 x 58 W, 2 x 80 W

Pre-equipped with tap-off connector and fastening system

Degree of protection IP20 to IP55

KNX/DALI interface



Max. number of DALI electronic ballasts: 64

Max. number of sets: 16

Max. number of DALI scenarios: 16

Degree of protection IP20

Lighting products (cont'd)

DALI controller



Number of DALI devices: 64 max

Degree of protection IP20

DALI Multisensor

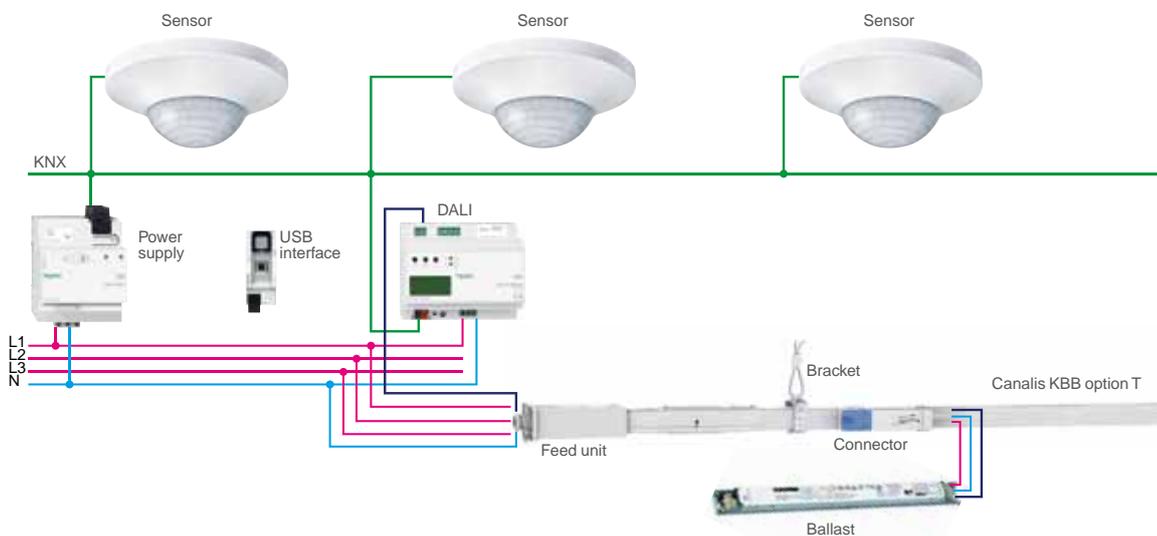


Combination of presence detector and brightness sensor with DALI interface

Light sensor: from approx. 10 to 1,000 Lux

Degree of protection IP20

Constant brightness control with the **KNX/DALI** gateway



Main distribution

SM6: Modular MV switchboards



Rated voltage: 24 to 36 kV

Service breaking capacity Ics: max. 800 A for 24 kV – max. 630 A for 36 kV

Trihal: MV/LV transformers



Trihal MV/LV transformers are used in MV/LV distribution substations and are perfectly suitable for premises where protection of persons is essential.

Power rating: from 100 kVA to 15 mVA

Rated insulation level: up to 36 kV

Thermal insulation class: F

Prisma Plus cubicle: main switchboard



Rated operational current I(e) at 40°C: 4000 A

Permissible short-term rated current I_{cs}: 100 kA rms/1s

Degree of protection IP30 to IP55

Canalis KT: rigid busbar trunking



Rated current 800 to 5000 A

Tap-offs every 0.5 to 1 metre on each side

Connectors and tapoff units: 25 to 1000 A

Degree of protection IP55

Secondary distribution

Prisma Plus enclosures: subdistribution switchboards

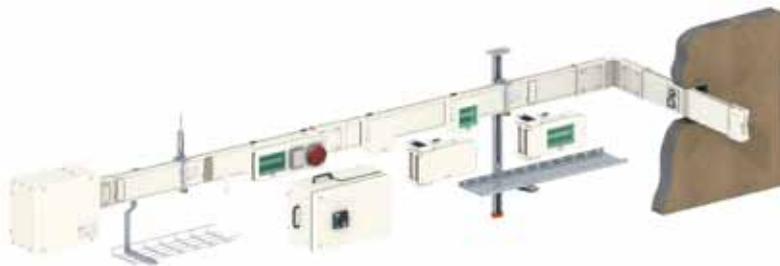


Rated operational current I(e) at 40°C: 630 A

Permissible rated short-time withstand current I_{cw}: 25 kA rms / 1 s / I_{sc}: 50 kA

Degree of protection IP30 to IP55

Canalis KS: Medium-power rigid busbar trunking



Nominal current 100 to 1000 A

4 live conductors

Tap-offs every metre on each side.
Element dimensions available to match storey interval.

Tap-off connectors and units: 25 to 400 A

Degree of protection IP55

Canalis KS Riser Pipe for power supply of low voltage subdistribution boards



Nominal current: 100 to 1000 A

Degree of protection IP55, halogen-free, RoHS-compliant, sprinkler test certified

4 live conductors

Length of sections: 2 and 2.5 m

Tap-off outlet on each side at regular intervals (0.5 m to 1 m)

Connectors and tap-off units: 25 to 400 A

Fire barriers

Canalis KN: Low-power rigid busbar trunking



Nominal current 40 to 160 A

4 live conductors

Tap-off points every 0.5 to 3 metres

Tap-off connectors and units: 16 to 63 A

Degree of protection IP55

Control bus

Compact NSX: Incomer circuit breakers



Service breaking capacity Ics: 100 to 630 A

Ui: 800 V

Ue: 690 V

iC60: Modular circuit breakers



Rating: up to 63 A

Rated current: 1 to 63 A and breaking capacity up to 100 kA

Operating voltage: up to 440 Vac

Insulation voltage: 500 V

Pollution degree: level 3

Auxiliaries: status and tripping indicator, shunt release, undervoltage release, overvoltage release.



Glossary

Gondola

This is the name given to a set of island shelves on which the goods for sale are displayed.

Lattice

This is the name given to a false ceiling type structure in suspended perpendicular bars with built-in luminaires.

Zoning

Zoning refers to the creating of different zones in the hypermarket. Each zone must fulfil the same criteria in terms of lighting level, hours of activity, control.

BMS

This is an abbreviation for a centralised Building Management System.

Rooftop

This is the name given to air conditioning units (heating/cooling) located on the hypermarket roof and designed to produce a hot or cold current of air.

FMCG

FMCGs are inexpensive products that people usually buy on a regular basis, such as supermarket foods or toiletries.
FMCG is an abbreviation for "fast-moving consumer goods".

Feeder

Primary run which supply secondary runs.

Low density distribution

The number of tap-off units connected to the busbar trunking is small.

High density distribution

The number of tap-off units connected to the busbar trunking is high.

Transport

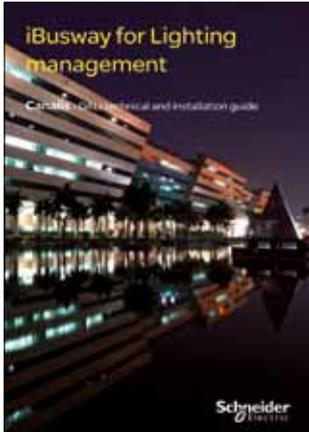
Straight lengths bigger than 10 meters, without tap-off outlets (example: switchboard / switchboard interconnection).

Interconnection

Straight lengths lower than 10 meters, without tap-off outlets (example: transformer / switchboard interconnection).

Tools

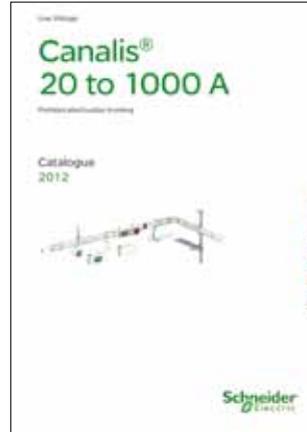
Technical documents and booklets



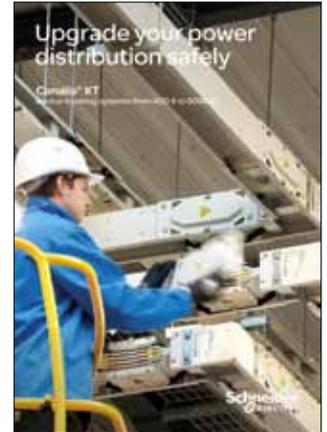
"iBusway for lighting management" guide
– DEBU032EN



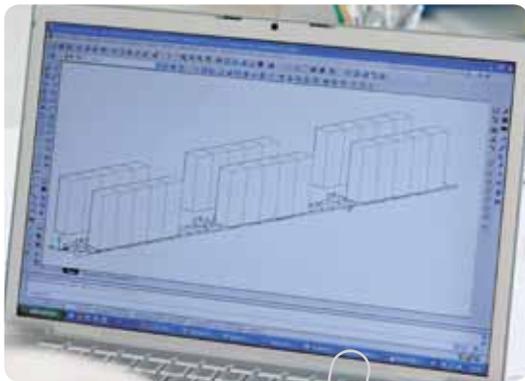
"iBusway for lighting management" booklet
– DESWED112002EN



"Canalis 20 to 1000 A"
catalogue – DEBU022EN



"Canalis KT" booklet
– DESWED112001EN



Software

The CanBrass and CanCad applications

These tools, used to design the installation, allow graphic representation of the Canalis lines and tap-off units.

You can use the CanCad application to represent the layout of the Canalis lines in an AutoCad environment and thus validate project conformity.

These tools are intended for:

- > electrical consultants
- > the Schneider Electric sales agencies accompanying you throughout your projects.

Additional information regarding Canalis offer is available on:

www.schneider-electric.com

Make the most of your energy™

www.schneider-electric.com

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