WAVERLEY

S3 Synchronised Solar Shading

Benefits of S3 Synchronised Solar Shading

Designed as a completely open protocol system, our suite of S3 Synchronised Solar Shading systems are an industry first.

Helping architects design sustainable and energy efficient buildings, S3's open market structure means the systems are adaptable to any form of communication to any BMS system and can be integrated to any KNX devices on the market. Therefore, the finishes and options that come with S3 provide a limitless and unrestricted solar shading strategy that is key to enhancing sustainability credentials and providing energy savings.

Seven Key Benefits of S3

Enhanced Natural Lighting

The S3 System can be designed to allow diffuse daylight into the building while blocking direct sunlight. By optimising natural lighting, artificial lighting needs can be reduced, resulting in lower electricity consumption and associated CO2 emissions. With our automated blind system, it can be utilised as part of a daylight harvesting strategy. The blinds can work in tandem with light sensors to maintain a desired level of daylight in a space. When the sensors detect sufficient natural light, the blinds can adjust to balance the daylight and supplement with artificial lighting only when necessary. This approach optimising energy usage by minimising the use of electric lighting during daylight hours.

Reduced Cooling Load

Automated blinds when connected to an S3 System can be programmed to close or adjust their position during periods of intense sunlight or high outdoor temperatures. By blocking or shading windows, they prevent direct sunlight from entering the building, which significantly reduces heat gain. This is particularly important with regards to complying with Part O and Part L of the Building Regulations. The S3 system helps to maintain cooler indoor temperatures and therefore reduces the need for excessive cooling, leading to energy savings and lower CO2 emissions. By integrating S3 with building management systems, you can be synchronised with other building systems like HVAC (heating, ventilation, and air conditioning). The blinds can automatically adjust their position based on the cooling requirements of the space, ensuring optimal thermal comfort while minimising energy consumption and CO2 emissions.

Improved Thermal Comfort

The S3 System can also contribute to warming a space by leveraging solar heat gain during colder seasons or times of the day. During the day, S3 Synchronised Solar Shading can be programmed to open and allow sunlight to enter the space. Sunlight contains solar radiation, which carries heat energy. By allowing sunlight to pass through the windows, the automated blinds help capture and transfer solar heat into the interior of the space, naturally warming it. This can be particularly beneficial during colder seasons or in spaces with sufficient exposure to sunlight. In colder climates or during colder periods of the day, automated blinds can be scheduled to close after capturing sunlight. This helps to retain the captured heat within the space by providing an additional layer of insulation. Closed blinds act as a barrier against heat loss through windows, reducing heat transfer to the colder exterior environment.

Natural Ventilation

S3 systems can be weaved into a building's ventilation strategy to comply with Part F of the Building Regulations. The overarching aim of Part F is to ensure necessary steps are taken to provide adequate ventilation in a building to protect the health of occupants. An automated blind system can be linked to the BMS to deploy/retract shades as necessary to maintain compliant rates of ventilation. For instance, the system could be linked with a CO2 sensor and programmed to retract if the CO2 within the room reaches a particular level. Additional guidance on natural ventilation can be found in CIBSE AM10 and CIBSE AM13.

Occupancy Based Control

S3 automated blinds can be integrated with occupancy sensors to detect the presence of occupants in a space. When the space is unoccupied, the blinds can be set to automatically close, reducing heat gain or loss through windows and optimizing energy efficiency. This feature ensures that blinds are only used when needed, preventing unnecessary energy consumption.

Maximised Fabric Performance

We often talk about metallised fabrics and the properties of a fabric and how it can reduce glare, but to get the full advantage of these fabrics pairing it with an automated system is fundamental. In order to reap the benefit, we must ensure that the blinds are in the optimum position throughout the day, as the sun is not static.

Future Proof Systems

The S3 System is designed to be fit for the future. The open protocol nature of the system is designed to be independent of any fixed supply chain, meaning all the components of the system are interchangeable with any SMI/KNX devices on the market place, and any KNX engineers with suitable training can maintain and upgrade the system. This is designed to give the client complete control of their building. The system is also fully digital meaning any changes to switching and zoning are software based. Once you have the Core of an S3 system in place there is never a need for further disruptive and expensive wiring for any changes.

S3 System Options

S3 System Options	S3 Core	S3 Advanced	S3 Premium
Individual Area Control	X	X	X
Floor Control / Basic Building Control		X	X
Full Building Control			X
Bms Link Via Jace (Bacnet)		X	X
Basic Switch Operation, Hardwired	X	X	X
Knx Switching		X	X
Knx Touch Screen (Customisable)			X
Intermediate Positions With Alignment	X 1 only	X up to 16 only	X 0-100%
Fault Finding		X limited	X
Basic Time Clock Functionality		X	X
Astro Time Clock Functionality			X
Basic Head End Functionality		X	X
Customisable Head End Functionality			X
Basic Sun Sensor Interface		X	X
Pro Sun Tracking System			X
Weather Management System			X
Environment Management System			X

Our systems are designed to be centrally wired to a customised project specific control panel that allows you to upgrade from a lower tier to a better system at a later date.

What is SMI?

The Standard Motor Interface is abbreviated to SMI, and is a consistent interface for electric drive motors. SMI was developed to enable the connection of motors with integrated electronic circuits for use blind systems and provides real time data to be exchanged between the motor and controller and vice versa.

Using an SMI System means that motor drives and controllers from different manufacturers are compatible with one another. It is now possible for the manufacturers of blinds, controller manufacturers and designers to effortlessly combine products from many different makers. (Becker, Vestamatic, Selve, Wago, Warema etc)

Benefits of drives and controllers with an SMI-interface are wide ranging and include the parallel connection of motors, the accuracy of the positioning, the availability of feedback and diagnostics from the motor and the possibility of flexible parameters.

Current demands for energy efficiency and sustainability call for solutions that work seamlessly without restrictions on components or suppliers. The SMI-interface for sun protection motors has an important role to play here. SMI is the consistent interface between the automation and sun protection systems.

What is KNX?

A KNX system is a bus system for building control (a bus system is a term for a method of transporting information on a computerised system). This means that all devices in a KNX system use the same transmission method and are able to exchange data via a common bus network.

Another important feature of a KNX bus system is its decentralised structure. There is no need for a central control unit, because the "intelligence" of the system is spread across all of its devices. Centralised units are possible, however, for realising very specialised applications. Every device has its own microprocessor. A major advantage of KNX's decentralised structure is that, if one device fails, the others continue to function. Only those applications dependent on the failed device will be interrupted.
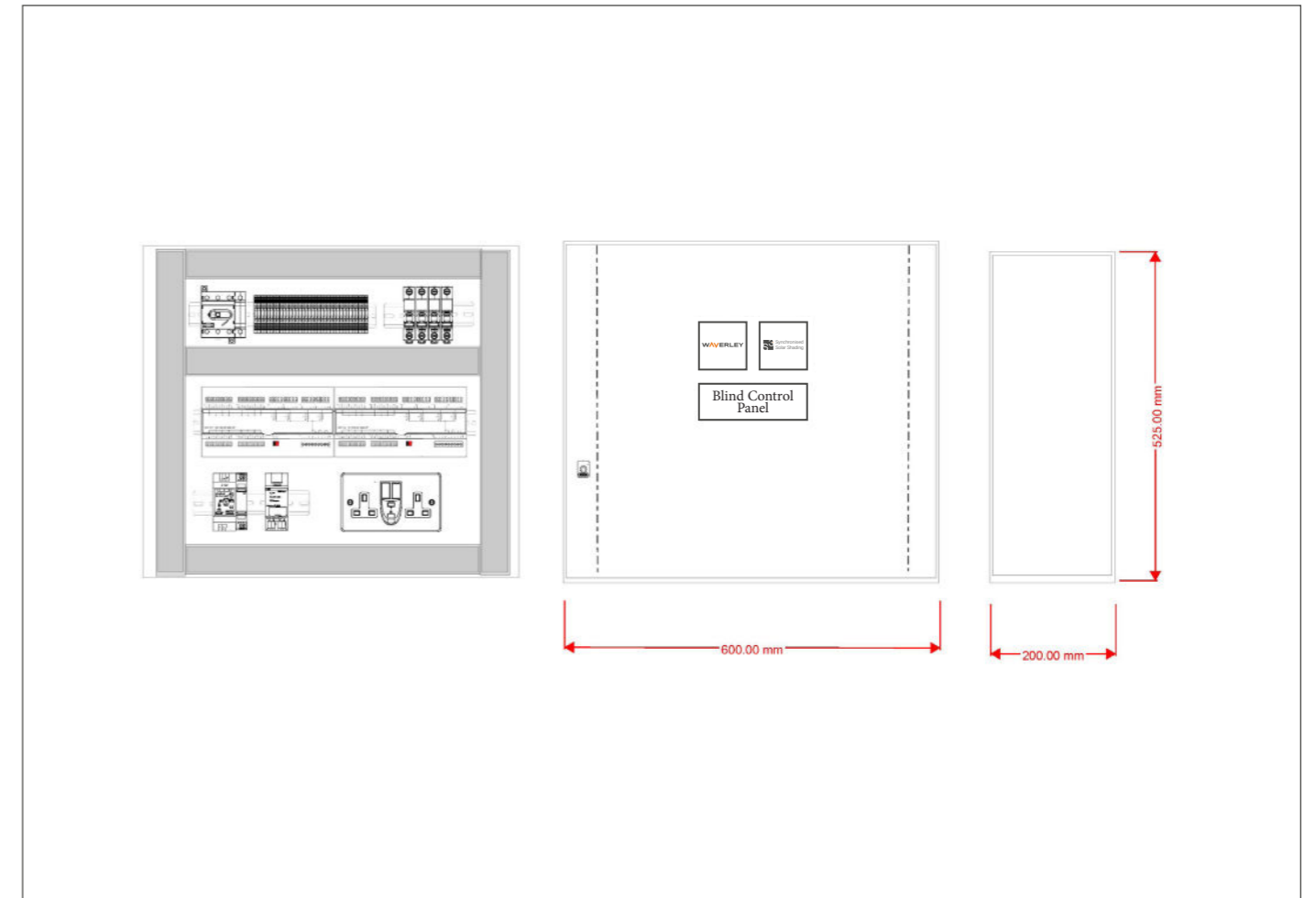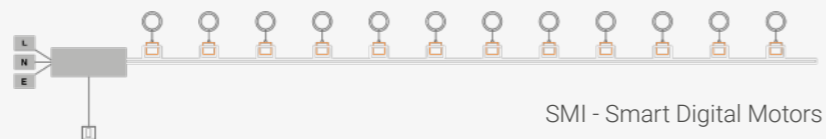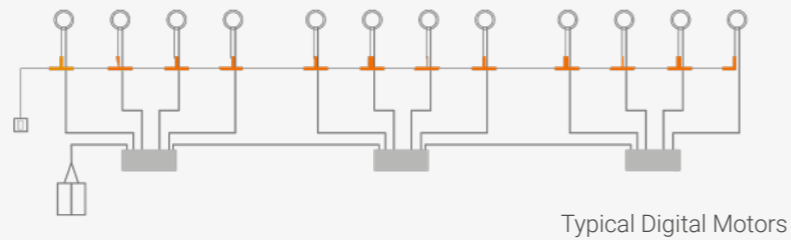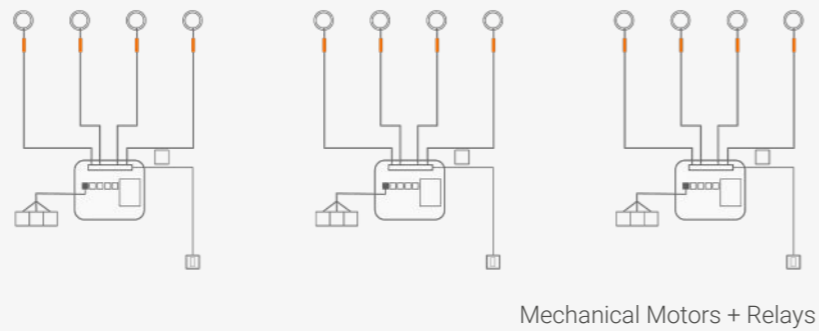
S3 Core

230v intelligent programmable quiet tubular hardwired motor, with positional feedback for accuracy. Parallel connection wiring system to drastically reduce cable requirement on installation. Group up/down control via hardwired switch. Hem-bar alignment on top and bottom stop positions. Manual push for an intermediate stop position.

- Individual areas
- Not linked to BMS
- Limited intelligence
- Basic switching
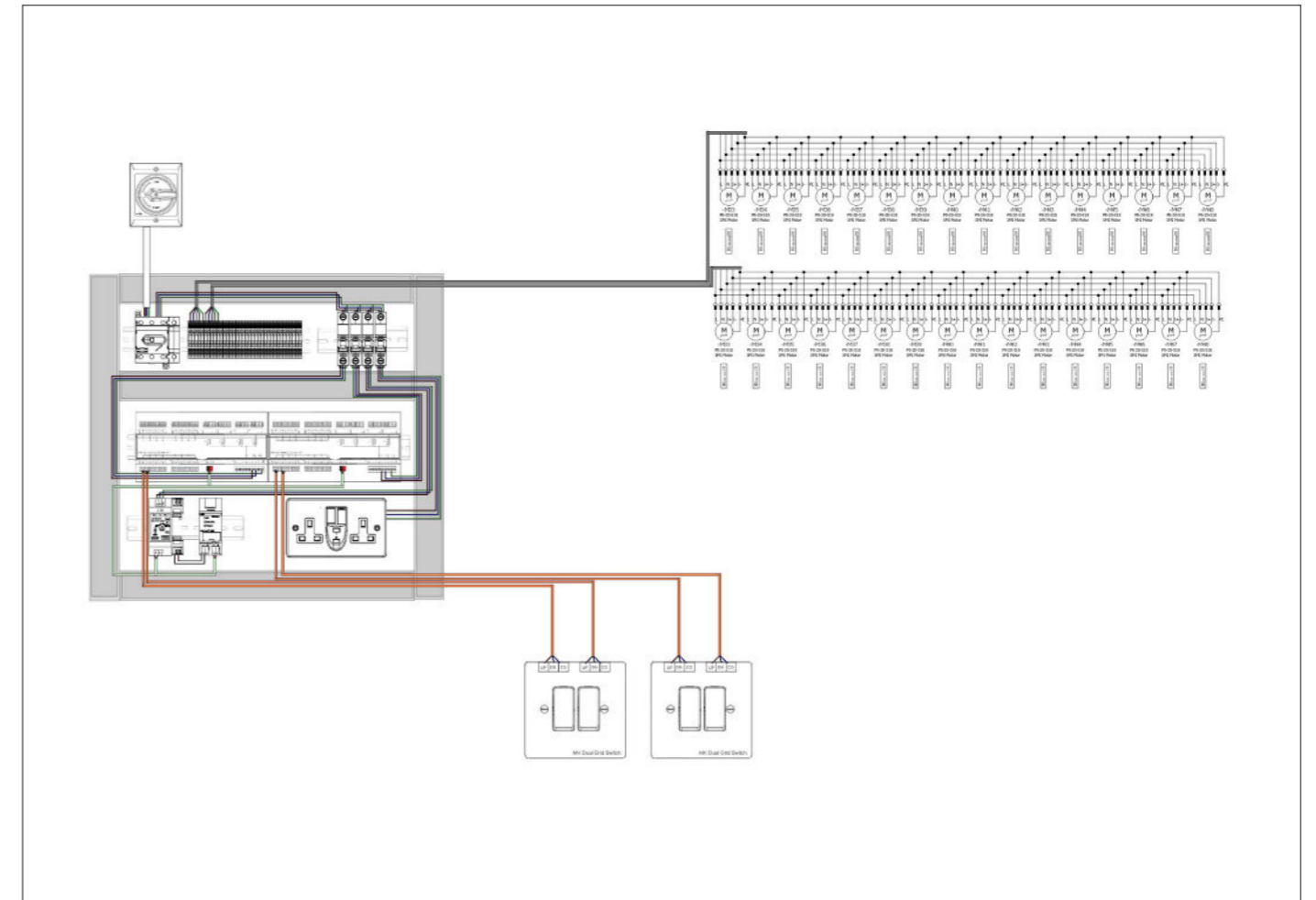
SMI Wiring Benefits

- Minimal containment required
- No fused spurs required
- Up to 60% less wiring required
- Less points of failure
- Much easier fault diagnosis

Mechanical Motors + Relays

Typical Digital Motors

SMI - Smart Digital Motors
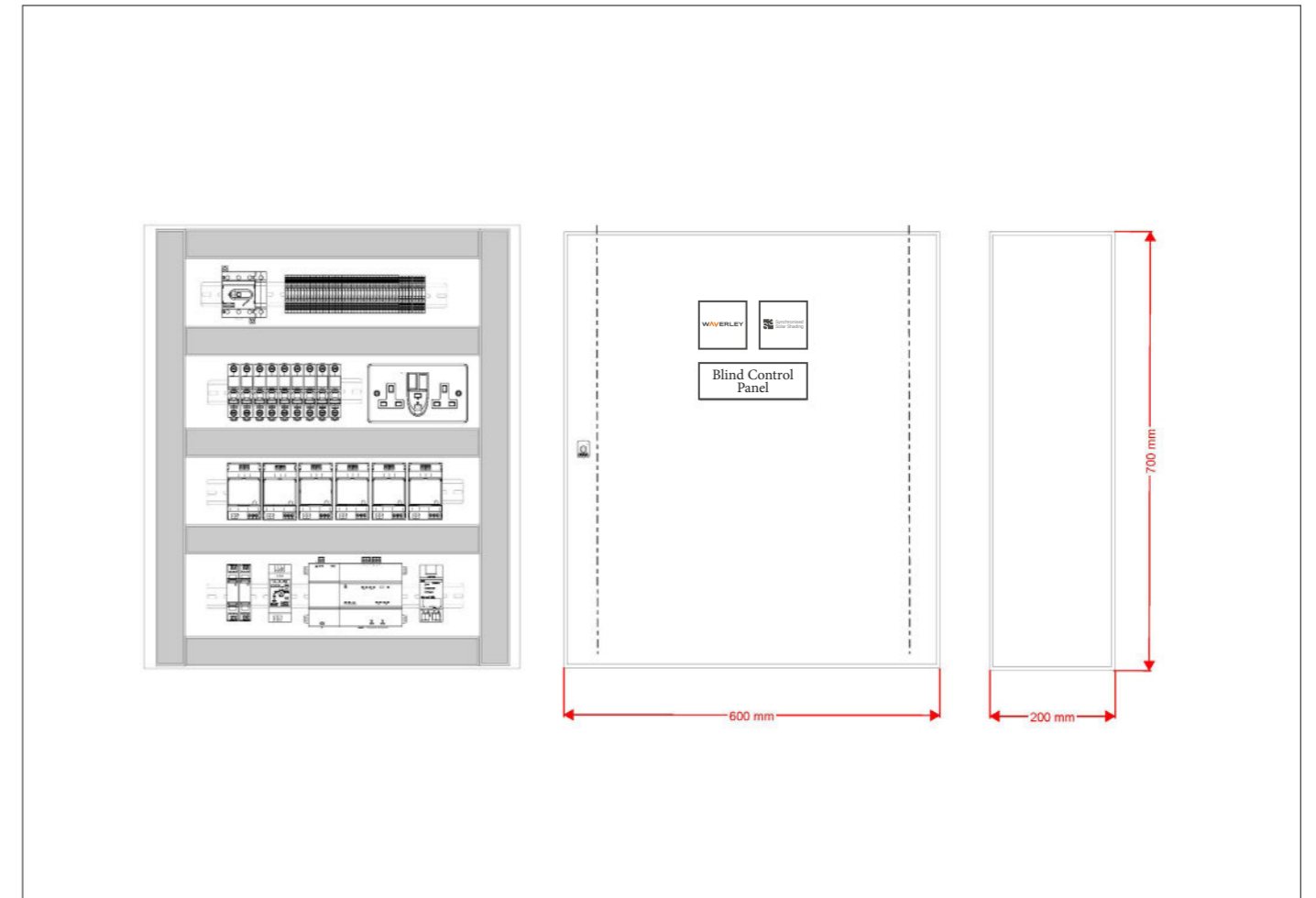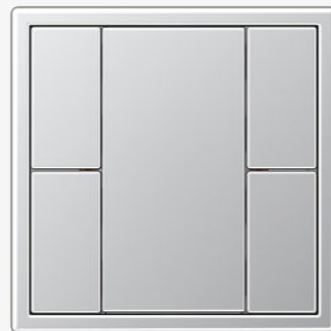

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S3 Advanced

230v Advanced intelligent programmable quiet tubular hardwired motor, with positional feedback for accuracy. Parallel connection wiring system to drastically reduce cable requirement on installation. Linked to BMS via Tridium Jace controller for fault finding, standard time clock operation and providing a basic head end functionality for system monitoring and adjustments. Customisable control via KNX switches providing aligned multiple stops and various group or individual options.

- Full floors or basic building control
- BMS link via Jace
- Advanced intelligence
- Intermediate aligned stops in set positions
- Fault finding
- Basic time clock functionality
- KNX switching
- Basic head end functionality
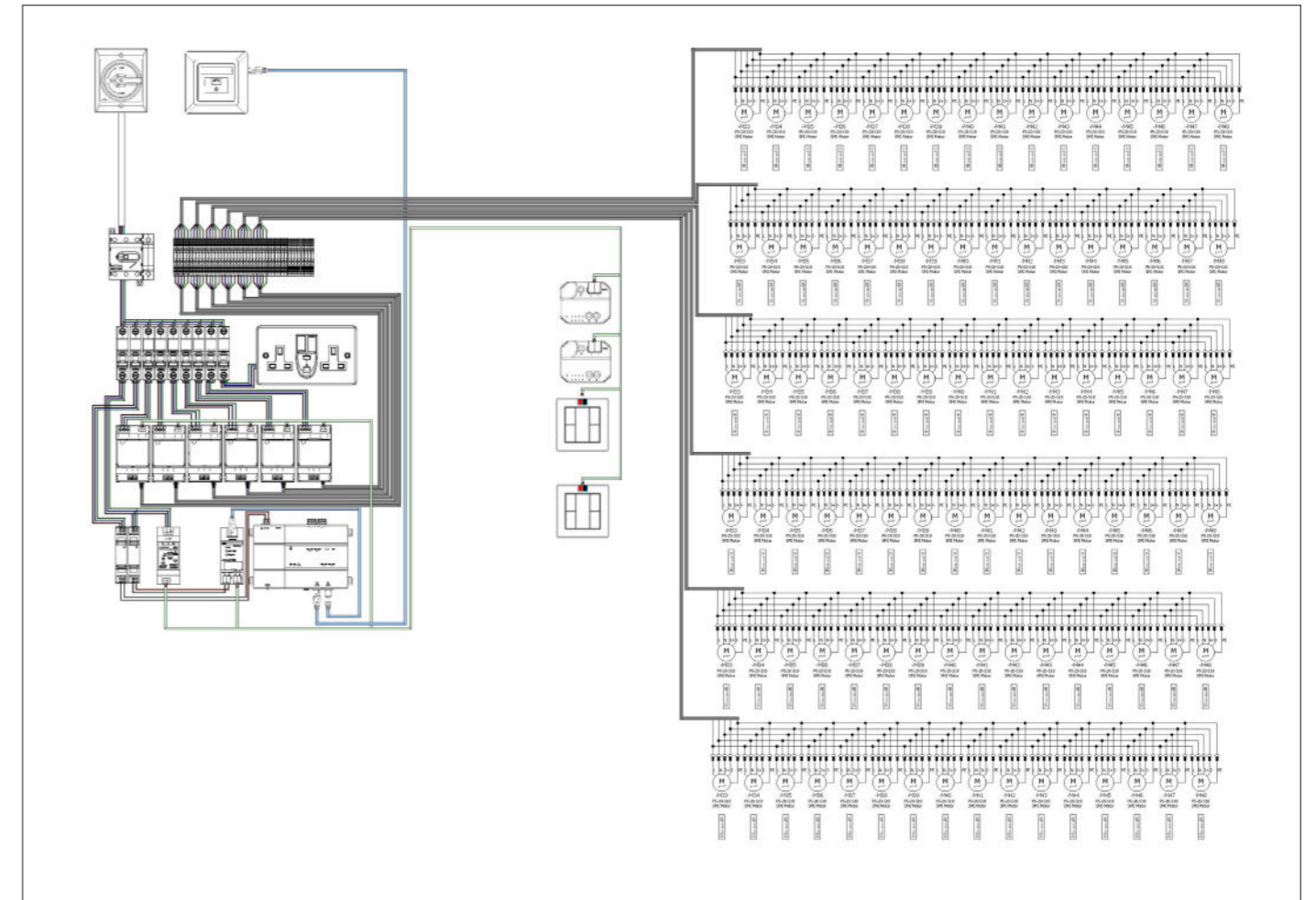
Types of KNX Controller

- Unlimited options from various suppliers
- Push button switches programmable to set positions or to drive up and down
- Touch Screen displays to allow for customisable zones and sliders to give 100% control
- Radio Handsets or switches linked over KNX RF to give future proof adaptations on the system

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S3 Premium

230v Superior intelligent programmable quiet tubular hardwired motor, with positional feedback for accuracy. Parallel connection wiring system to drastically reduce cable requirement on installation. Linked to BMS via Tridium Jace controller for fault finding, Astro time clock operation, Pro Sun tracking system*, Energy management system** and providing a customisable head end functionality for system monitoring and adjustments. Customisable control via KNX switches providing 0-100% intermediate stops and various group or individual options.

*Advanced sun tracking system using 3D building or KNX positional data modelling to ensure maximum daylight with optimised glare control for the user.

**our energy management system utilises data from occupancy sensors and internal temperature sensors to ensure that the building is operating as energy efficiently as possible at all times.

- Full building control
- BMS link via Jace
- Superior intelligence for intermediate aligned stops 0-100%
- Fault finding
- Astro time clock functionality
- KNX switching
- Customisable head end functionality
- Pro Sun tracking system
- Environment management system

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