

interoperability • flexibility • scalability

Imagine

digidim



Helvar Router Systems

Router Systems



Marina Bay Sands, Singapore

These days even relatively modest lighting installations combine both commercial and architectural lighting elements. Think of hotels with energy efficient lighting in public places as well as mood lighting in lounges, or large office buildings combining energy-saving interior lighting with external decorative flood-lit facades.

This convergence in lighting control applications has in the past challenged lighting specifiers and installers since it has not been easy to combine architectural and commercial control systems into a single integrated system.

The Digidim 910 and Imagine 920 routers provide a building block for commercial, architectural and Architainment™ lighting control systems to be integrated. They produce the best of both worlds and greatly simplify the jobs of installers, systems integrators and lighting designers.

The Digidim 910 and Imagine 920 routers also allow for integration with third-party systems such as Building Management Systems (BMS).

Project References

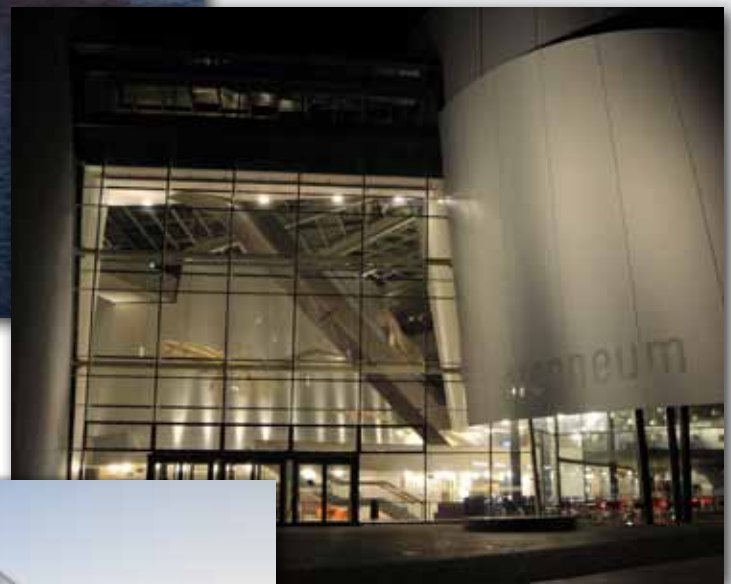
The proven scalability and flexible functionality of the Helvar Router System makes it a versatile solution for a wide variety of applications ranging from energy efficient commercial lighting to state of the art architectural lighting applications. Its Ethernet (TCP/IP) backbone allows the routers to be mixed and control any common light source from halogen, fluorescent to LED.



Bocconi University, Italy



Oasis of the Seas and Allure of the Seas, RCCL

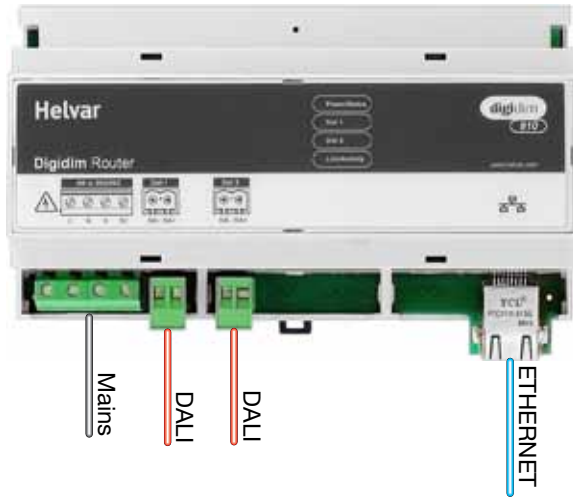


Ozeaneum, Germany



Tapiola Group, Finland

DIGIDIM 910 Router



Product Solution

DIGIDIM 910 Router system uses standard Ethernet communication to integrate DALI networks. Its modularity allows to design scalable systems, from a single office room to a large office building.

Basic functionality is available “out-of-box” without any programming. Advanced functionality is programmed through Helvar’s Designer software. Each individual router can operate two DALI subnets containing a total of 128 control devices and load interfaces. The system enables energy saving via a combination of presence detection and constant light functionality. Further automation is achieved through scheduled time events. OPC server software and Ethernet I/O commands enable interfacing to third party systems such as Building Management Systems (BMS).

Key Features

- 2 x powered DALI subnets (128 devices)
- Ethernet port for network backbone
- Universal mains supply for global use
- Ethernet I/O commands
- DALI-Emergency support
- Astronomic time clock

Ultimate Reliability

All data is stored within the system itself and eliminates the need for PC control in daily operation. The elimination of a central controller ensures no single point of failure can cause a total system shutdown. If desired a PC can be connected to the router system for diagnostics and logging purposes.

Complementary components

Helvar also provides a wide range of DALI compliant control devices for all router systems. This includes a modular control panel range comprising push-button, rotary, or slider combinations in a range of finishes to suit any modern décor style. Other components include DALI multisensor, wall mount & DIN-rail dimmers, input and output units. Additionally Helvar provides a full range of controllable electronic ballasts (EL-iDim) based on the latest DALI protocol.



Product solution

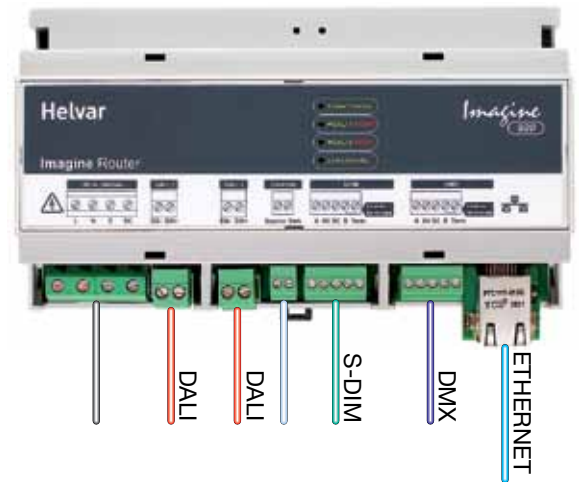
The 920 Imagine Router provides standard control protocols including DALI, DMX, Ethernet (TCP/IP) and Helvar S-DIM to control any common light sources and third-party systems. All of this technology is packaged in an easy to install DIN-rail enclosure.

Control

In architectural applications, the system allows the user to take control of the lighting and create the right ambience. By a simple touch of a button, the system will provide comfort and safety. In commercial applications, maximum energy saving is achieved by application of constant light, presence detection and automated time schedules.

Monitoring

The 920 router can monitor and log the system status, which is essential in Building Management Systems (BMS). Light levels can be monitored and act as an indicator for the energy consumption in the system. Additionally, DALI Emergency devices can be monitored and tested, either manually or through scheduled tests.



Key features

- 2 x powered DALI subnets (max. 128 devices)
- DMX port (in or out)
- S-DIM port for Helvar Imagine devices
- Ethernet port for network backbone
- Override port for S-DIM
- Universal mains supply for global use

Imagine

Ethernet Backbone

Router system is based on an Ethernet backbone, which has become the de facto network standard in the commercial world. This creates greater flexibility in developing creative lighting solutions when interfacing with third-party Ethernet-enabled components. Installation is also simpler with the use of Ethernet, eliminating the need for expensive cabling and tools. The Ethernet system backbone interconnects multiple routers. It facilitates modular network solutions that are easily scalable to meet changing demands, thus providing a future-proof system. The router's flexibility ensures that when requirements change, basic changes can be made through software without costly rewiring, saving time and money.



Single Router System

A single router is typically applied in mid-size applications such as a meeting room, lecture theatre or restaurant.

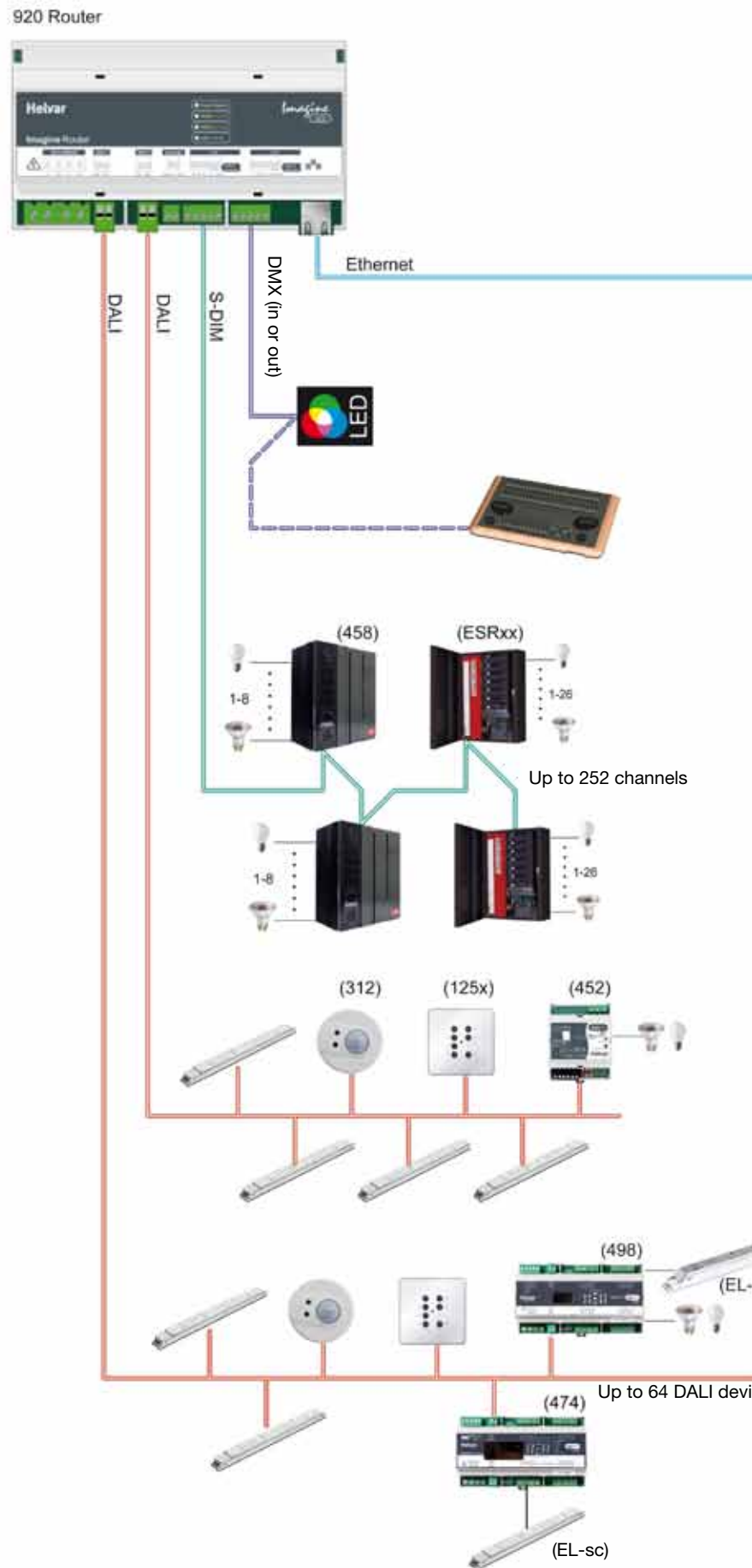
The 2 x powered DALI subnets may have up to 128 DALI devices connected, including Helvar's DIGIDIM devices:

- button panels
- load interfaces (dimmed, switched, 1-10 V)
- DALI multi-sensors
- DALI ballasts (EL-iDim)

The DMX port can be used either for sending DMX data (e.g. control of LED colour fixtures) or receiving DMX data (e.g. from a control desk).

The S-DIM port provides fast RS485 serial communication, using the Helvar S-DIM protocol. This allows control of 252 channels of Helvar Imagine devices.

The 920 routers are interconnected and configured through a standard Ethernet 10/100 Mbit/s connection using the Internet (TCP/IP) protocol. The 920 router is powered via a universal mains input (85-264 VAC, 45-65 Hz).



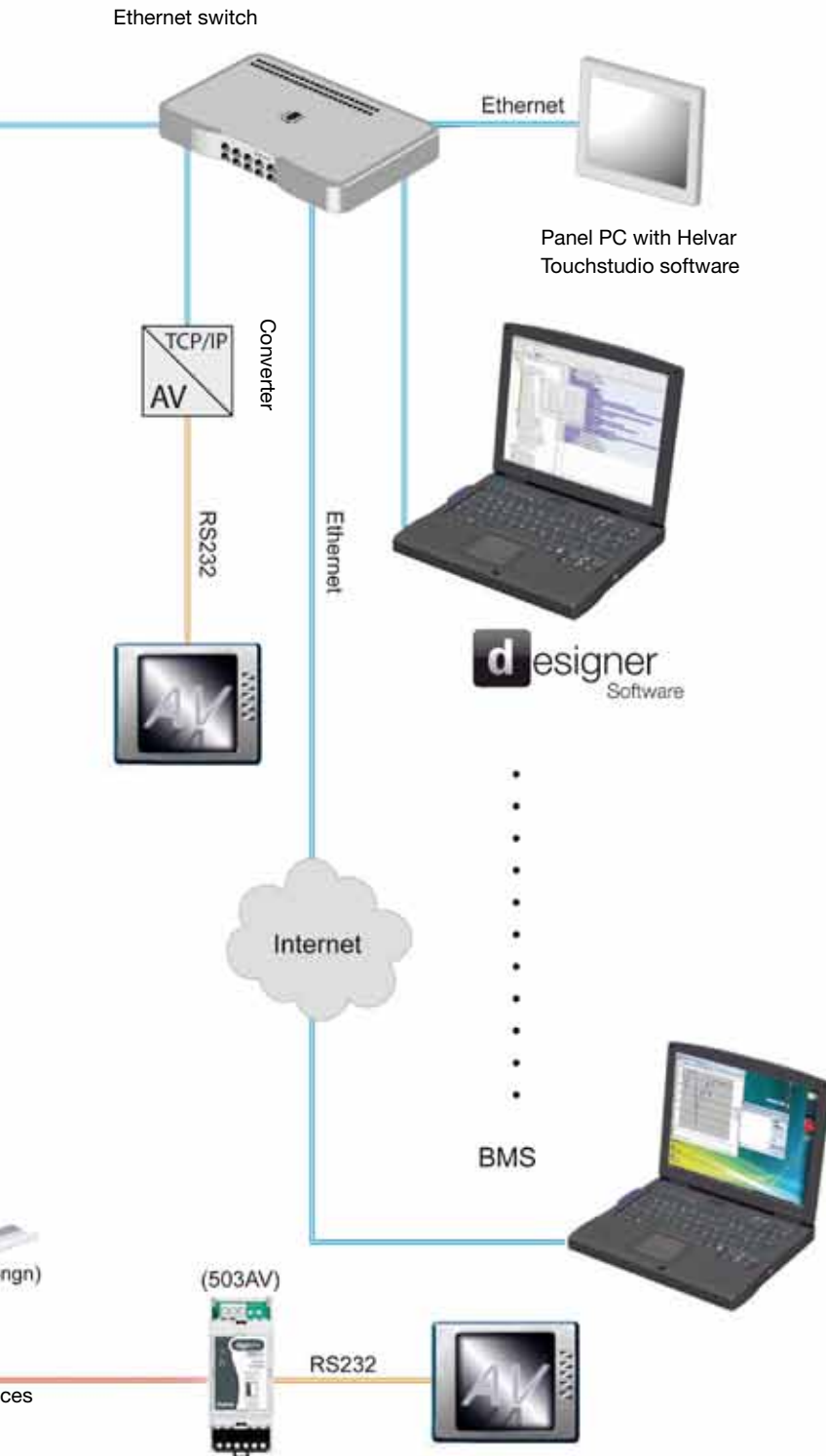
System Integration

More and more lighting applications require control beyond lighting, and hence will benefit from the system integration capabilities of the Digidim 910 and Imagine 920 routers.

The router system is commissioned and programmed through Helvar's Designer software suite. In addition, Designer software can be equipped with an optional OPC plug-in application (OPC server). OPC is a software communications interface offering open connectivity for interactive control and data exchange between a Helvar router system and an external host system such as a BMS (OPC client).

Direct access for integration is offered through the Ethernet I/O command set. It eliminates the need for a software interface and makes it possible to connect the router system directly to other Ethernet-enabled systems like a BMS or LCD touch panel. Ethernet commands (TCP or UDP) can be used to control and query the Helvar router system, or to send commands to external systems.

More traditional system integration could benefit from using the Helvar DALI-to-serial gateway 503AV. Standard serial RS232 messages can be used to control and query the router system.



Networked solutions

Multiple Helvar routers can be networked together to create one seamless system, when designing large system solutions.

Office floors

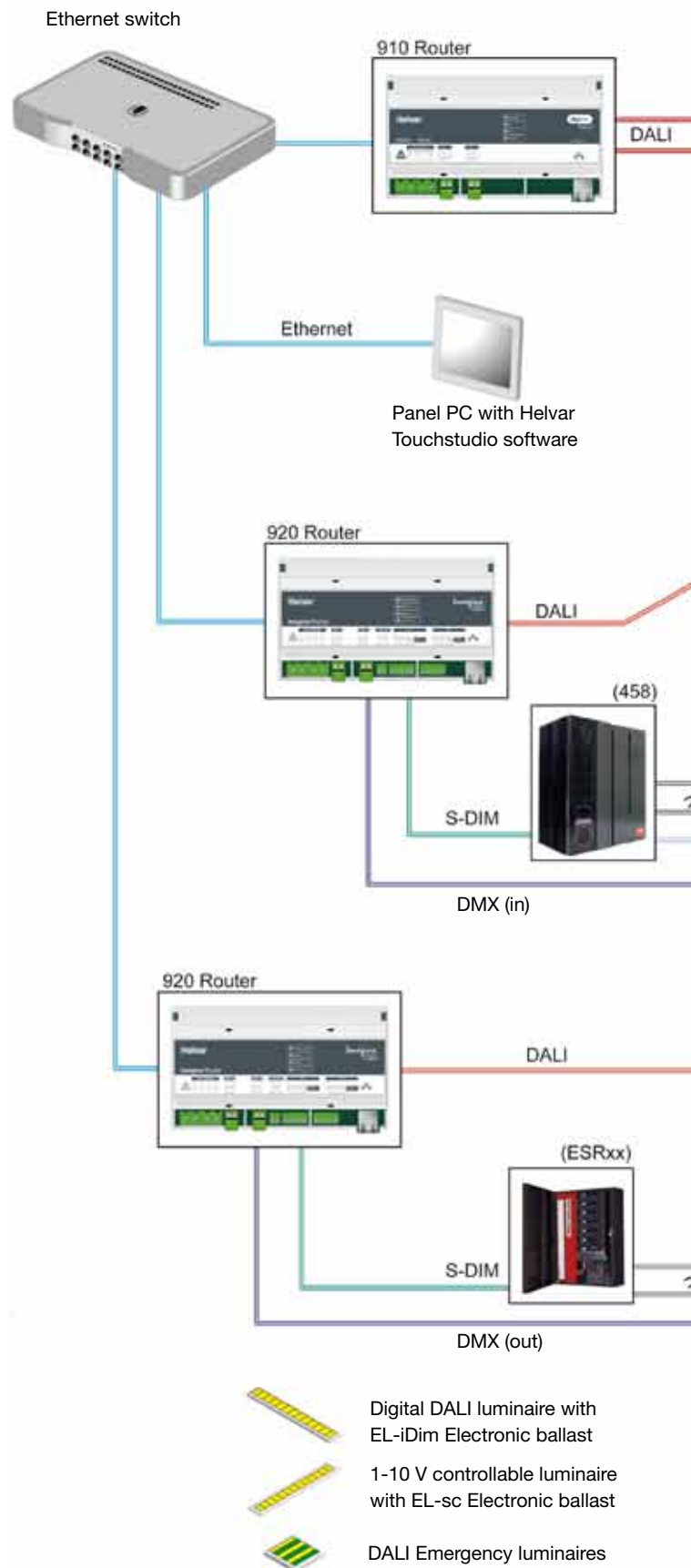
When controlling primarily fluorescent loads, then the 910 Digidim Router is a more cost effective solution than the 920 Router. The 910 Router features two DALI subnets. These may be used for DALI ballasts (EL-iDim), Multisensors (312) for maximum energy saving and DIGIDIM user interfaces for manual control. DALI Emergency devices can also be included and monitored.

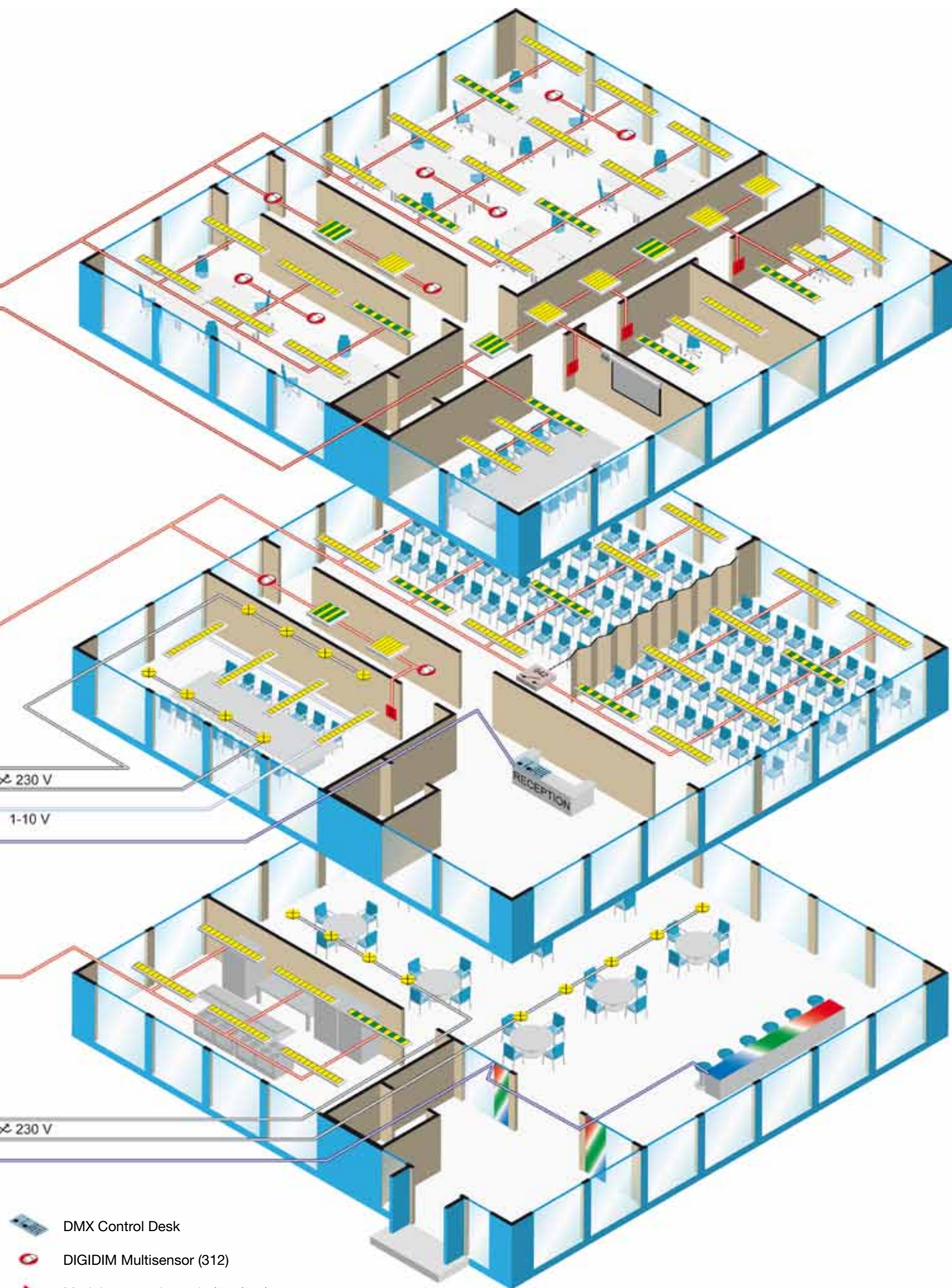
Conference centre

In conference centres, the 920 Imagine Router can control any common lighting loads through its DIGIDIM and S-DIM load interfaces (dimmed, switched, 1-10 V, DSI and PWM). DMX devices (in or out) may also be connected. Router system also allows for control of projection screens and/or AV equipment, and can have input devices connected for partitioning purposes.

Restaurant floor

The 920 router provides provides total control in restaurant applications that have a mix of lighting loads (e.g. fluorescent, LED, cold cathode and halogen). Different lighting scenes can be programmed to energise the room during breakfast, or to create a relaxing ambience for dinner. This can be controlled through timed events or manually through button panels or LCD touch panels.





Designer Software Suite



Helvar Designer is a Microsoft® compatible software suite. It provides an intuitive tool for engineers to design, commission and program both Helvar 910 & 920 router systems. Designer comprises basic software and optional software modules. Helvar's ongoing software and hardware development ensures that all system components are compatible and perform reliably.

Design

With Designer it is possible to create off-line designs from the office, or program on-line to create or fine tune the lighting system design. Three levels of password protection are available to secure the system data. Scene data can be transferred to and from other Microsoft® packages such as Excel.

Commissioning

An important function of Designer software is the commissioning of Helvar system devices. This is typically a one-off exercise done upon completion of the physical device installation. During this first stage, all system devices are identified, tested, named and grouped.

Programming

During this stage the intelligence of the system devices is programmed. The programmed functionality is determined by the demands of the lighting designer or end user.

Functions include:

- Scenes and fade times
- Links, sequences and conditional logic
- Multisensor intelligence
- Room partition functionality

Monitoring, logging and reporting

Designer also features functionality to monitor and log system events. It allows diagnostic reports of device behaviour and facilitates fault finding.

- Live monitoring of scenes or load levels
- Logging of emergency test results
- Log entries are automatically time stamped
- Log to hard disk (CSV file format, MS Excel compatible)



Integration - OPC & Ethernet I/O

Many building systems are converging and require some level of integration. For this the following integration options are available:

- The OPC module offers an interface (OPC server) for open connectivity, interactive control and data exchange between Helvar router systems and external host systems such as an HVAC (OPC client).
- The Ethernet I/O module offers a tool for direct router system access. Ethernet commands (either TCP or UDP) can be used to control and monitor the router system. Alternatively, a Helvar router can send Ethernet commands to external Ethernet enabled devices. Applications include direct PC access to Helvar's system for custom front-end software solutions; Panel PC for intuitive user interfacing and control of e.g. Ethernet enabled Audio/Video gateway. For more information on how to use Ethernet I/O commands please refer to Designer help file.



DALI Emergency

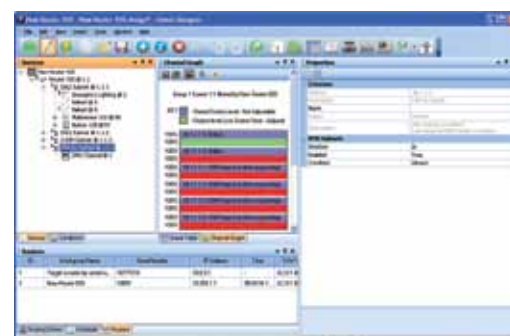
The DALI Emergency optional software module is used to monitor and test DALI Emergency devices.

- Out-of-box functionality & auto EM device grouping
- Manual tests & automatically scheduled test
- Functional tests (short operational test)
- Duration tests (comprehensive test)
- Live or logged reporting (CSV file format)

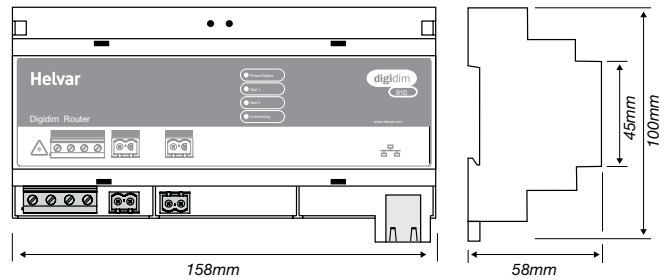


Plans view

This is an optional software module (available from v4.3) that allows AutoCAD drawings to be imported and Helvar system devices to be graphically overlaid. It facilitates a friendlier and faster commissioning process.

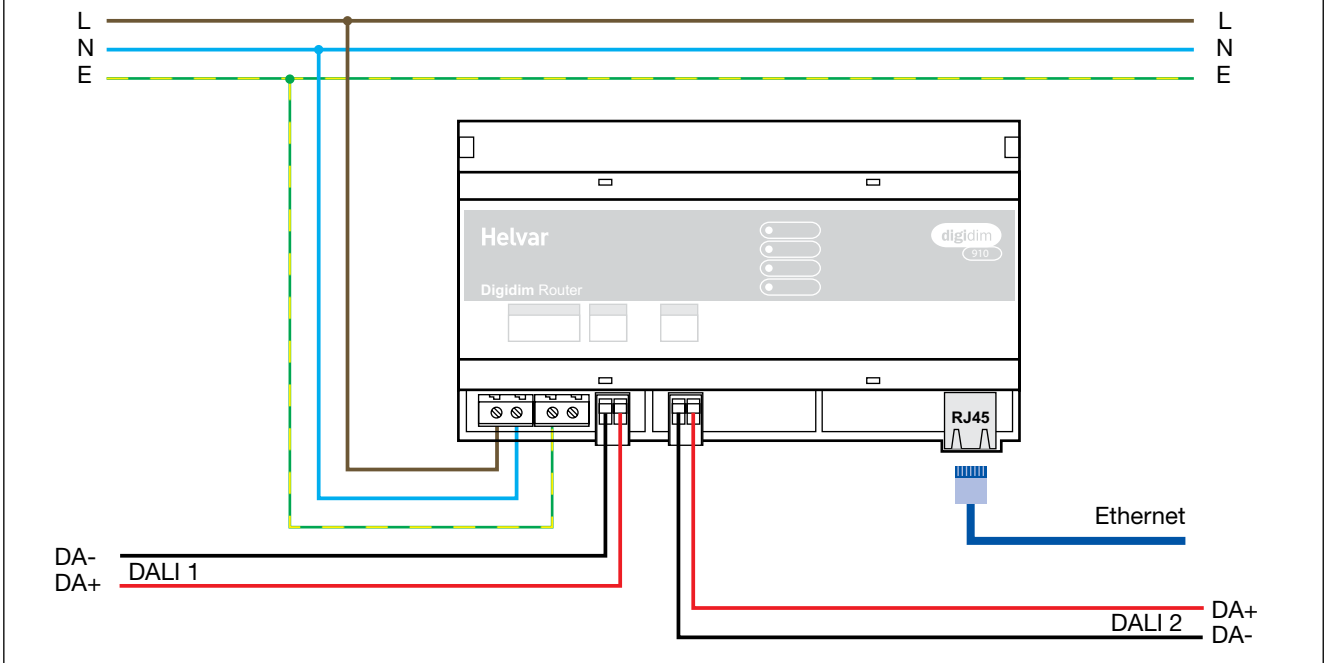


Technical Data – DIGIDIM 910 router



DIN-rail case 9U-wide, weight 265 g

Connections



Introduction

The DIGIDIM Router uses standard Ethernet communication (TCP/IP) to combine multiple DALI networks. The router features two DALI subnets allowing for a total of 128 DALI control devices and load interfaces.

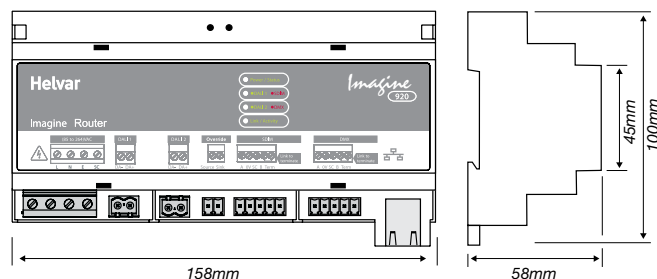
Key Features

- Two DALI subnets, each with 250 mA power supply
- Ethernet port for network backbone
- Supports OPC, allowing connection to BMS
- Supports Ethernet I/O communication
- Supports DALI Emergency devices

Technical Data

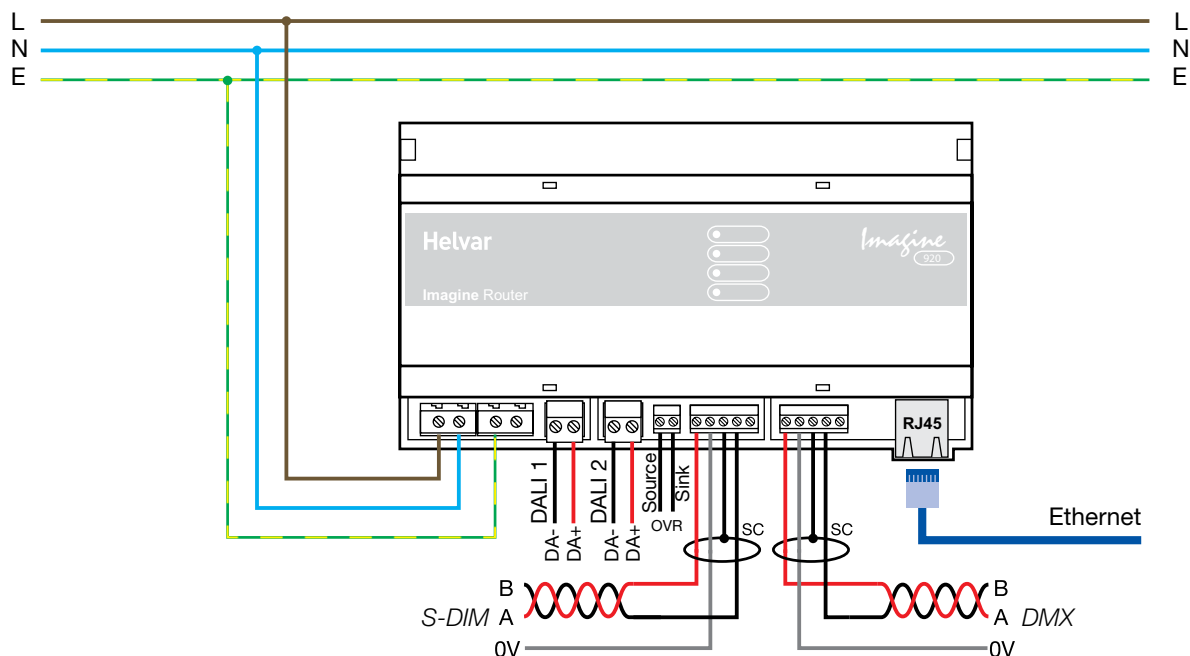
Supply voltage:	85-264 VAC, 45 Hz-65 Hz
External MCB protection:	4 A
Standby Power:	2.5 W
Max Total Losses:	4.2 W
DALI power source:	2 X 250 mA
Ambient temperature:	0...40°C
Relative humidity:	90% max, non-condensing
Storage temperature:	-10...70°C
IP rating:	30 (except connectors)

Technical Data – Imagine 920 router



DIN-rail case 9U-wide, weight 260 g

Connections



Introduction

The 920 Imagine Router uses an Ethernet connection (TCP/IP) as a network backbone to combine DIGIDIM / DALI, DMX and S-DIM networks seamlessly together. A PC can be connected to the system for control, monitoring and logging purposes.

Key Features

- Two DALI subnets with 250mA power supply
- S-DIM port for Helvar Imagine systems
- DMX-port (in or out)
- Override port for S-DIM
- Supports OPC, allowing connection to BMS
- Supports Ethernet I/O communication
- Supports DALI Emergency devices

Technical Data

Supply voltage	85 - 264 VAC, 45 Hz - 65 Hz
External MCB protection	4 A
Standby Power:	2.5 W
Max Total Losses:	4.3 W
DALI power source	2 x 250 mA (built-in)
Ambient temperature	0 ... 40°C
Relative humidity	90% max, non-condensing
Storage temperature	-10 ... 70°C
IP Rating	30 (except connectors)

Due to our continuing program of product development, data is subject to change without notice.

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