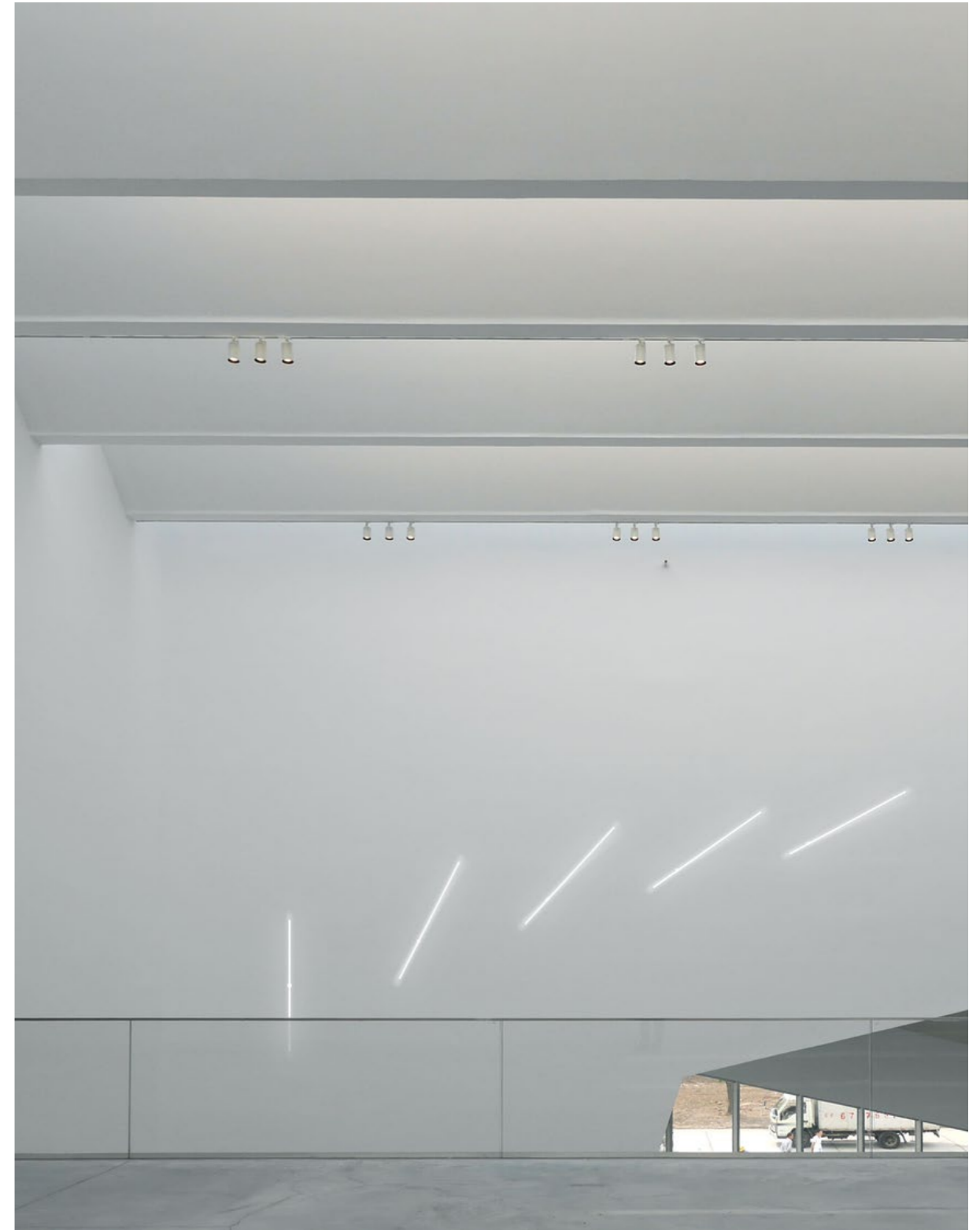


POLAR by FELD

A modular light system based on deceptively simple rules of translation and rotation.





This kinetic light system seeks to redefine our understanding of light and its familiar stationary characteristics.

Light is movement — about POLAR

While we are used to the ebb and flow of natural light, the artificial light sources that surround us tend to be fixed and motionless. We can turn them on or off, but they do not move with us – rather, we move according to them. POLAR wants to change that: Based on the shape of a classic neon tube, this kinetic light object reacts and adapts to its surroundings through a combination of translation and rotation.

Because of its modular structure, the possibilities are endless: While each module allows for the creation of minimalistic and graceful graphical imagery, POLAR comes to life in interactive, motion-oriented or data-driven choreographies.

POLAR light modules can be combined, driven individually or in sync and arranged in an infinite number of shapes ranging from abstract combinations to more figurative scenarios. At different speeds, a continuously changing tilt angle and with varying translation, the patterns of movement created are unfamiliar and mesmerising.

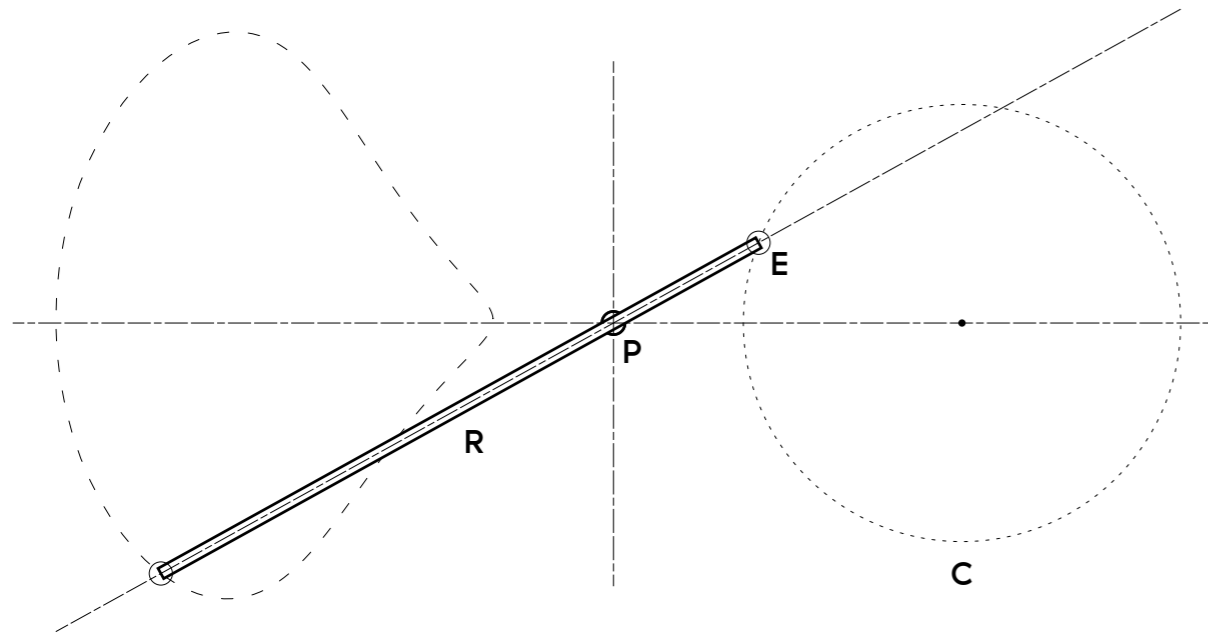
Whether as an interior light object that livens up an entrance hall or as a large scale installation that transforms public space, POLAR can take many different forms.



Top: Double row array for geometrical choreographies.

Right: Ceiling mounted modules reacting to the passing of people in the corridor.

A kinetic light module based on deceptively simple rules of translation and rotation.



Freeing Wittgenstein's Rod

In the first half of the 20th century, the philosopher Ludwig Wittgenstein proposed a geometry problem wherein a rod of fixed length (R) can pivot about a point (P) while one end (E) traces the circumference of a circle or ellipse (C). What form would the other "free" end of the rod describe? While the rules of translation and rotation are deceptively simple, the shapes created in Wittgenstein's experiment are surprisingly complex.

POLAR frees Wittgenstein's proposed configuration from the restrictions of a circle and lets it trace all imaginable lines within a 2D-space, creating a wide range of movements and figures.

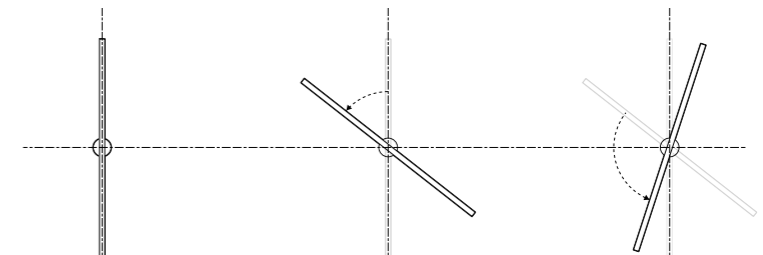
Working Principle

POLAR is composed of a long light tube attached to a rotation mechanism. The light tube can shift along its center axis while being rotated around the center point by 360°. Each light tube consists of several smaller light sources which can be controlled separately. Modules can be driven individually, in sync or in several groups independently of one another. Up to 255 modules can be linked to one control unit which can be chained to allow even greater numbers of modules in one set-up.

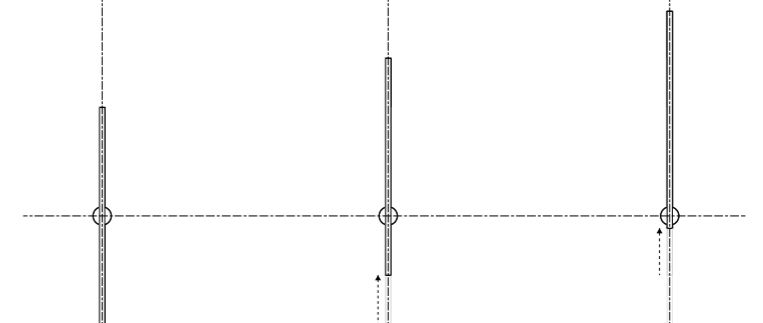
An arrangement of lights can perform fixed choreographies or can be fed data from sensors or other external sources. Systems comprised of modules and control units can be integrated into existing lighting or other control systems.

POLAR can be set up according to different variables in all kinds of environments and spaces. The following pages illustrate possible set-ups and configurations of how the POLAR system can be used.

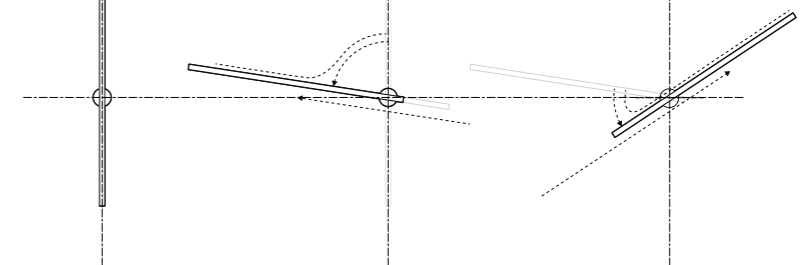
Rotation of 360° clockwise and counter-clockwise



Translation by half the length of a light in both directions



Fluid continuous combination of rotation and translation



Possible set-ups and configurations

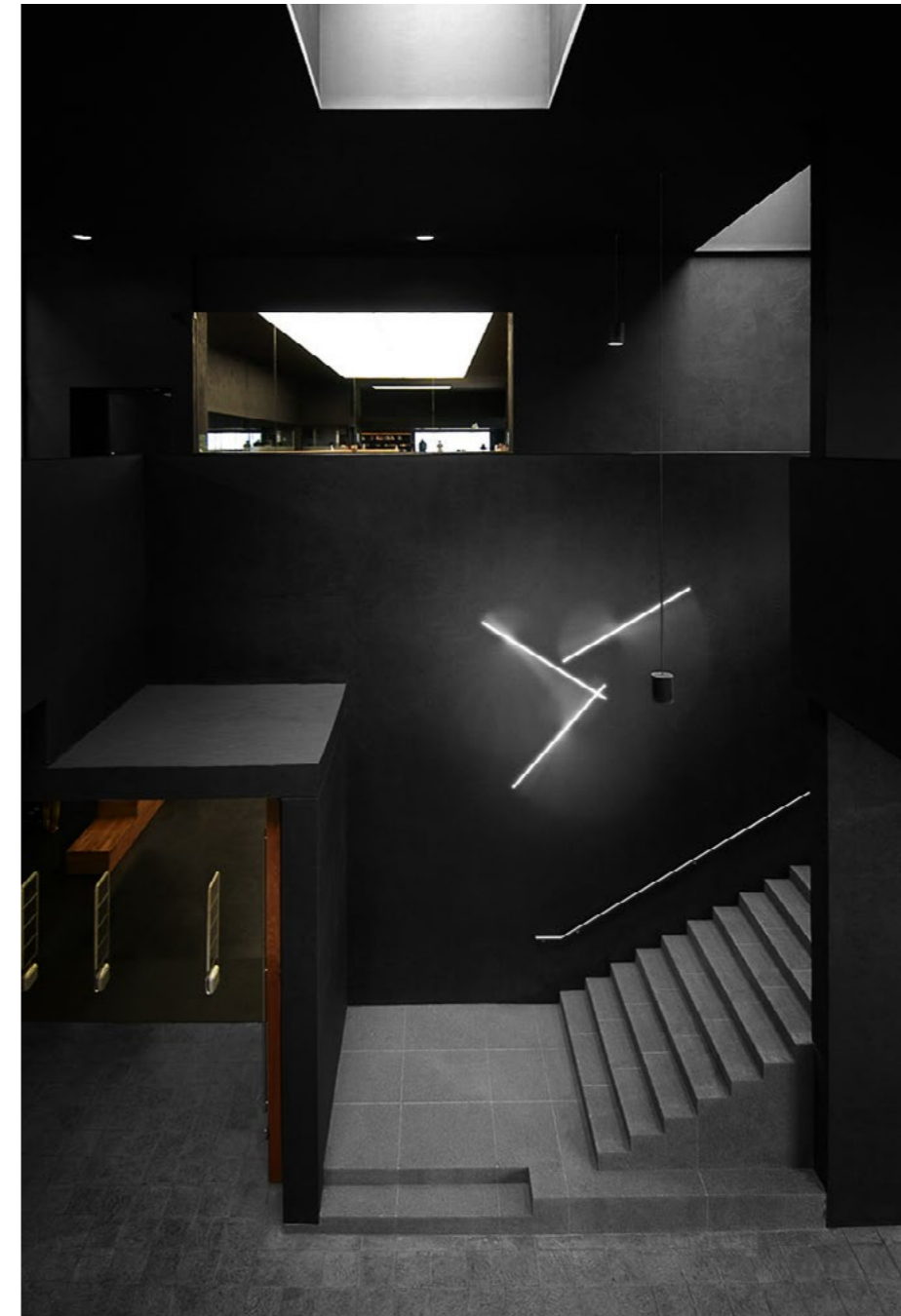
Fixed Choreography

The higher the number of lights, the more complex the possible constellations become. But even with a small number of modules, POLAR creates a dynamic and elegant choreography of geometrical shapes or fluid lines.

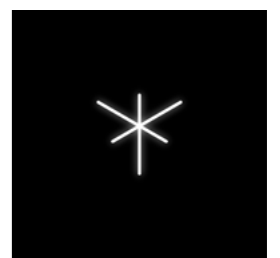
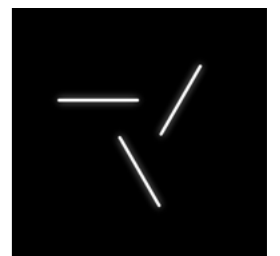
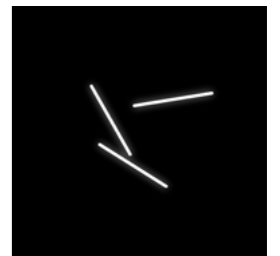
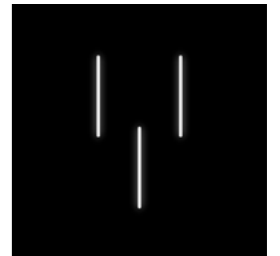
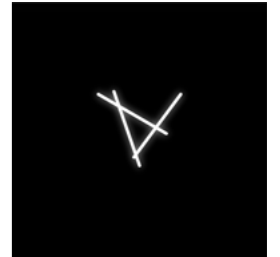
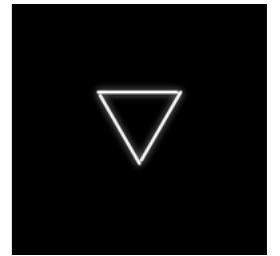
A simple isosceles triangle can perform varying movements and coalesce into a beautiful ballet which lies in between seemingly chaotic structures and minimalistic graphical imagery. Arranged further apart, approaching but never touching lights form an ever-changing display of lonely lines in space – a hypnotic experience for long-term observers or the passing public.



Large scale outdoor use as a dynamically changing icon.



POLAR as an indoor kinetic sculpture with a mixed choreography of concrete and abstract figures.



Possible set-ups and configurations

Reactive Motion

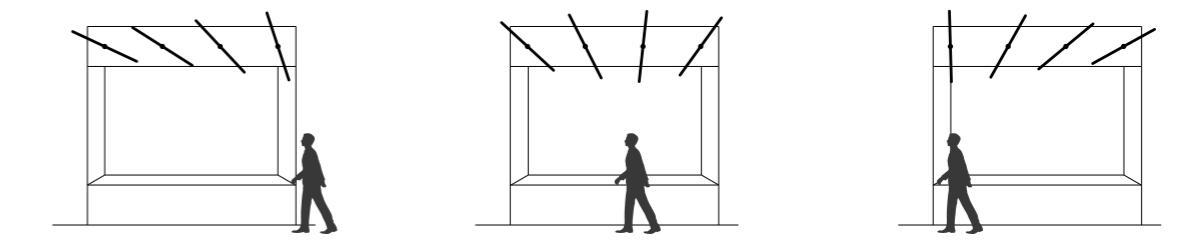
If fitted with sensors, POLAR can pick up on the movements around it and for example gently follow the flow of people passing by. Mimicking the speed and intensity of its environment, it amplifies the subtle changes in space and motion that usually escape our notice. In this interactive mode, POLAR offers us a deeper understanding of our seemingly arbitrary, yet aligned movements in a shared surrounding.



Reacting to passing visitors: Visualisation of motion patterns in an entrance space.



Motion tracking of passing pedestrians



Sensors and external data:

Passing pedestrians, arriving trains or any change in surrounding can be a driving force for one or several POLAR light modules.

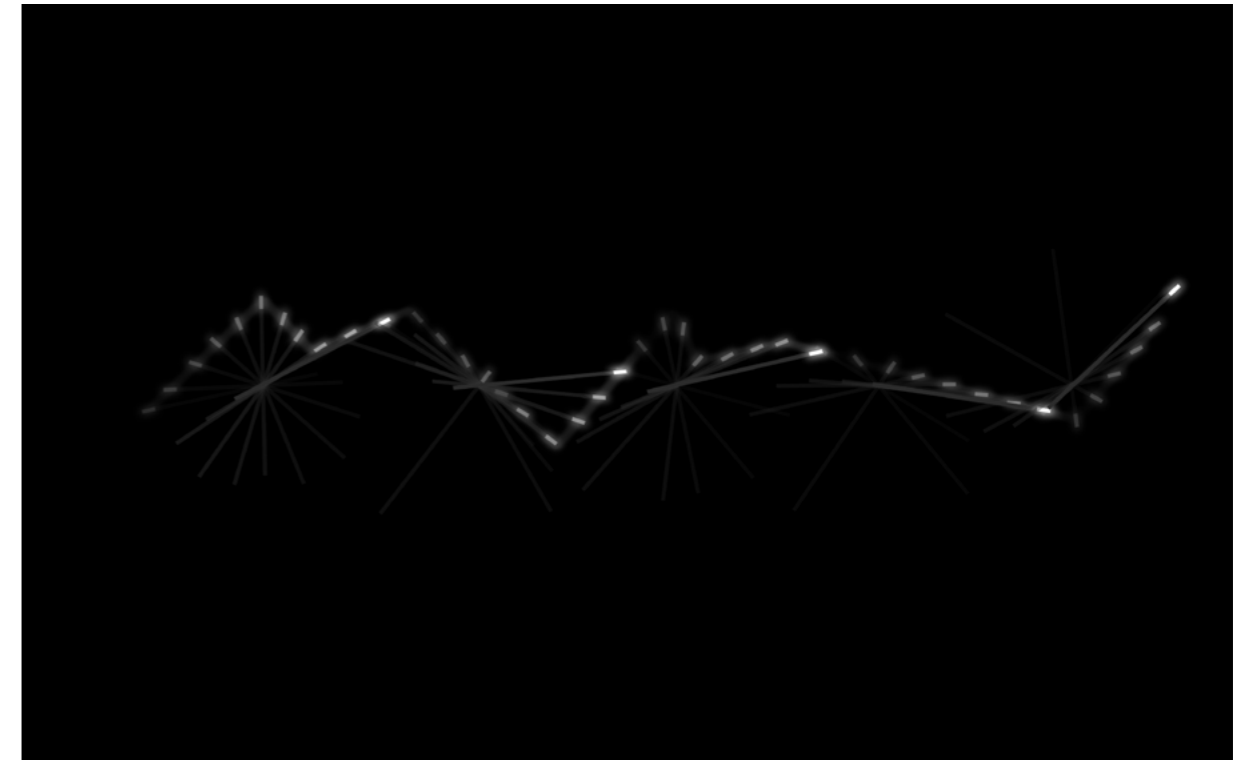
Possible set-ups and configurations

Data Visualisation

POLAR can also be arranged to visualise more abstract sets of data such as graphs and other time-based graphical data. For example by setting all lights to a vertical orientation, they can be driven up and down to act as points on a static or dynamically changing graph.

Light tubes containing individually controllable lighting elements allow for even further flexibility.

Subtle dynamic data sculpture in an office or foyer environment



Using the individually controllable light sources as dots on several tubes to combine rotation, translation and the position of a single dot in space to trace a continuous line over a short period of time.



Dynamic graph visualisation by means of vertical motion



Graph visualisations via combination of rotation and vertical motion

Parameters which can be used for graph visualisations

- Light tubes consist of multiple controllable small light sources
- Rotation and translation can be used separately or combined
- Contextual clues on the backdrop or foreground for orientation (grid lines, scales, patterns)

POLAR — technical overview

While each light module allows for the creation of minimalistic and graceful graphical geometries, POLAR comes to life in interactive, motion-oriented or data-driven choreographies.

Polar modules can be used as:

- Stand alone kinetic objects
- Arrays of varying sizes and configurations
- Part of an existing or planned lighting or other control system
- Data sculptures in public, semi-public or private environments

Polar modules can be controlled:

- In sync
- Individually
- Grouped
- In fixed choreographies
- By data or other external sensor input

Light tubes for POLAR can be fitted with light sources in the range of **2700 - 7000 Kelvin**.

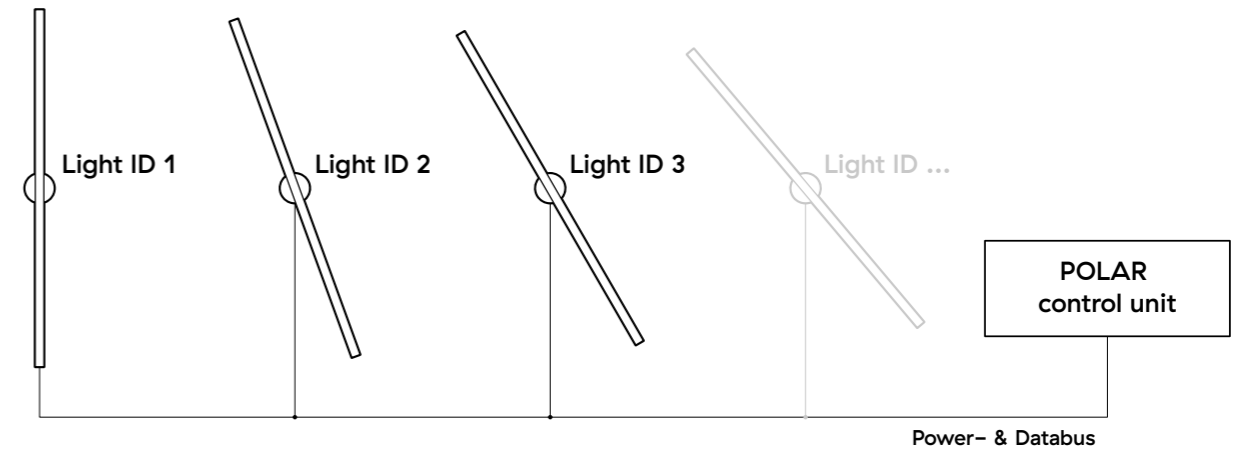
Each light tube **consists of several lighting elements** which can be **controlled individually** from one another to allow the module to be illuminated anywhere between a **faint dot to a fully lit tube**. Each light can be configured to **emit light directly** towards its front or onto the surface behind it thus giving the impression of **indirect lighting**. Front and backlighting can be combined and also **controlled seperately**.

POLAR can be **scaled to fit** a variety of different scenarios whether as a **small light object** that livens up an entrance hall or as a **large scale installation** that transforms public space.

Use Polar for your projects

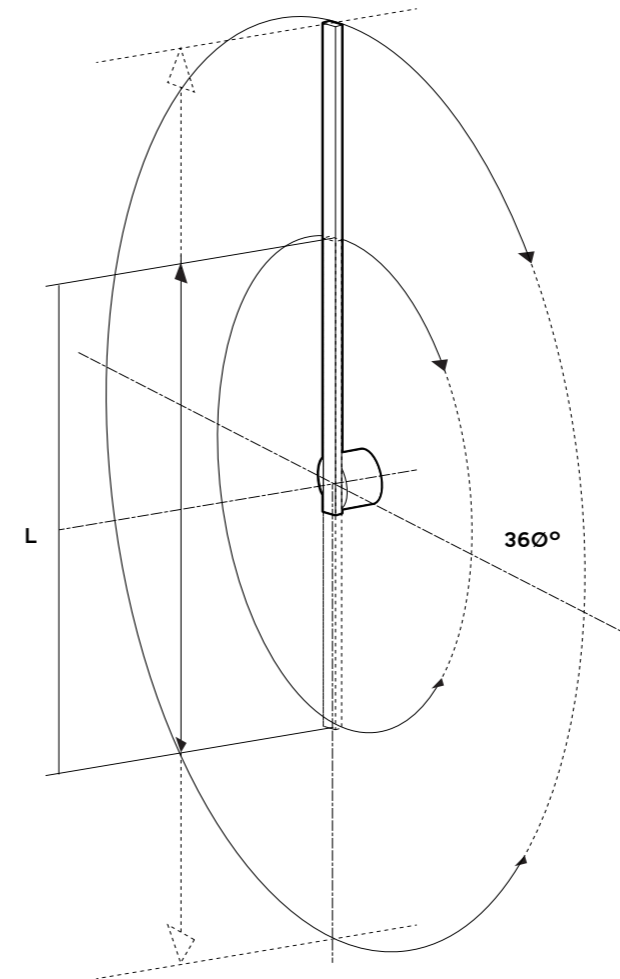
Whether you are an **architect** with an interest in light installations, an **interior designer** looking for a creative light object, a **stage designer** or an **urban planner** trying to find new, interactive ways to enliven public spaces: **We welcome the opportunity to work with you to find individual solutions for your projects.**

Please contact us for an individual offer via email at polar@feld.is



POLAR Control Unit

- Controls up to 255 POLAR light modules
- Can be integrated into existing lighting systems
- Network connection via Ethernet or WiFi
- Supports various hardware sensor inputs
- 120 - 270 VAC Input



POLAR Light Module

- Linear light tube translated by half its length on a center axis consisting of individually controlled small lighting elements
- Separate light elements can be dimmed smoothly
- Wall-mounted rotation mechanism: Rotates by 360° clockwise and counter-clockwise



FELD is inspired by the possibilities of technology to transcend the borders between physical and digital environments, seamlessly bridging art and design, architecture and engineering, society and science.

FELD was founded in 2011 by a group of Berlin-based designers who share a common language of digital thinking in their creative process.

The studio combines scenography, computational and generative design, physical computing, electronics, user interface design and a confident and elegant graphic design attitude. These skills are equally present in artistic interventions and in high-end production commissions for digital communication projects such as interactive environments, spatial installations or exhibitions.

FELD is composed of graphic, media and product designers, software and hardware developers, engineers and project managers, and holds several in-house prototyping and production tools to facilitate an iterative and experiment-driven design process. Each project is carefully and individually handled and evolves in close dialogue with the respective client.

The studio has been working with international clients and partners within various fields, ranging from commercial companies and research institutes to cultural institutions, galleries, architects and artists.

FELD studio for digital crafts



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