Control systems
Intelligent, efficient and comfortable

Quality of Life – WAREMA.
As a manufacturer of external and internal sun shading systems WAREMA produces pioneering solutions which are technically superior and designed to meet the requirements of your property. With the matching control systems they improve the energy balance of your building and the value of your property and they enhance your own quality of life.

This brochure provides an initial overview, allowing you to find your way around the wide and varied choice of our control systems and their individual areas of application.
Introducing WAREMA  

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The right products
for your dream house.
We develop and produce modern and functional sun shading system solutions which enable active SunLightManagement. We rely very consciously on the strengths of a family company based in Germany. Cooperation based on trust and fairness is a key prerequisite for the partnership with our customers. Our actions and approach are consistently geared towards increasing customer benefit. To this end we now offer a growing range of products and services tailored to your requirements and demands.

Our varied and innovative product developments, our high quality claim, the individually manufactured products and the extensive services are indispensable for our leading position as SunLightManager on the European market.

The most modern manufacturing technique and handwork are equally important for our order-related manufacturing of the sun shading control systems, whereas the aspects sustainability and protection of the resources are taken into consideration for all processes.

Apart from first-class products we offer our expert partners an comprehensive range of services which supports your daily work.

We offer builders a range of different options for both internal and external sun shading and control systems - with existing products as well as with individual special solutions. We can guarantee complete professional service as well as advice and information on our products that take into account current energy saving regulations and recent developments in standards for the building sector.
Sun shading systems from A to Z.

External venetian blinds

Venetian blinds facade systems · Metal system venetian blinds · Window system venetian blinds · Front-mounted external venetian blinds · Top-mounted external venetian blinds for new buildings · Sloped external venetian blinds · Wind-stable external venetian blinds · Light control venetian blinds

Pergola awnings, patio roofs and patio awnings

Single-walled slat systems · Large slat systems · Hollow slat systems · Articulated arm awnings · Cassette awnings · Conservatory awnings · Patio side screens · Canopy awnings

Roller shutters

Front-mounted roller shutters · Top-mounted roller shutters · Top-mounted roller shutters for new buildings · Renovation roller shutters · Sloped roller shutters · Safety roller shutters

Sun sail

Pergola awnings · Patio roofs · Sun sail
Unattractive and boring purpose-built buildings are a thing of the past – continuous glazed facades and special shapes have become a staple of modern architecture. And the desire for individual style is constantly growing. This new diversity also demands a similar diversity of sun shading systems. WAREMA offers a perfect, individual solution for every architectural style – for inside and outside.
Room climate intelligently controlled – the WAREMA system concept.

The OPTI SYSTEM

External sun shading systems
External WAREMA sun shading systems reduce solar incidence of energy. Incidence of light is optimised to allow for sufficient daylight utilisation without glare. The concept is simple: Depending on time of day or year more or less sunlight is allowed in and the system uses more or less of the possible solar energy gain.

Internal sun shading systems
The internal WAREMA product provides additional glare control all year round, providing convenience and a high level of comfort. Visual privacy or view out can be individually adjusted. High-grade materials and a varied colour palette give individual style to any room.

Intelligent control system
WAREMA control systems create the ideal room climate with optimum daylight utilisation. They make use of solar energy according to demand and around the clock.
Optimal sun shading systems and significant energy savings are interesting aspects for any home owner today. The WAREMA OPTI SYSTEM provides the ideal room temperature – pleasantly cool in summer and cosily warm in winter. Fully automatic with maximum comfort. With existing heat protection glazing, the combination of external adjustable sun shading systems, internal glare control and intelligent control saves up to 40 percent of energy costs.

Further information can be found at www.warema.com/optisystem
Increase energy efficiency – with WAREMA sun shading system.

Energy savings with technical sun shading systems in connection with an intelligent control system
Around 40% of the energy requirement of a European home is used for lighting, heating, cooling and ventilation - half of it for heating alone! According to a study by the European Solar Shading Organisation (ES-SO) around 110 million tonnes of CO₂ could be saved in Central Europe alone with efficient sun shading systems in connection with an intelligent sun shading commission. This is a key issue in terms of the energy saving regulations and its consequences for builders and home owners.

The increasing size of glazed and window facades provides greater surfaces for the sun to enter buildings, causing rooms to heat up faster in summer. In winter, heating energy increasingly radiates to the outside. You can use WAREMA sun shading systems to reduce the outward radiation of heat, prevent your rooms from heating up and make the most of daylight. Daylight improves personal well-being and therefore also performance in the workplace.
At the press of a button – relax in comfort.
Creating personal well-being easily and conveniently – the WAREMA know-how for control systems and sun shading offers best possible support. Rather than manually positioning individual venetian blinds or entire facade shading systems, the creation of comfortable temperature and light settings can simply be left to the automatic control. You have more time for important and pleasant things because you only have to interfere with the sun shading control as required.

Networked control solutions provide an outlook for how we will be living and working in the future. In addition to sun shading systems they also control lighting, heating, air conditioning and ventilation systems as well as motorised windows, creating maximum comfort. This helps you to create maximum comfort.

Practical application

- **Bedtime for your children**
  The roller shutters in the children’s rooms can be controlled from the lounge – manually or automatically at preset times.

- **Television – without any hassle**
  Get comfortable on your sofa. One simple press of a button on your radio remote control creates your personal feel-good atmosphere: Your sun shading is lowered, the light is dimmed and the projector is switched on. That’s how TV should be enjoyed.
Control while you are away – creating security.
Your property needs security. WAREMA control systems make an important contribution for protecting your property from burglaries or weather damage. Effective occupancy simulation deters burglars and impedes unlawful entry by lowering the sun shading units. In dangerous weather your sun shading products are moved to a safe position before any damage can occur.

Practical application

- **Worry-free holidays**
  With one press of a button you can close all the roller shutters in your house and you can be sure that none was forgotten. If you also activate the occupancy simulation the house still seems occupied.

- **Preventing storm damage**
  Heavy storms often occur during the winter season. Your WAREMA control system measures the wind speed. When the wind gets too strong the sun shading units are automatically moved to a safety position to protect them from damage.

- **Enjoying your interior furnishings**
  Controlling sun shading units depending on the sun intensity not only reduces build-up of heat in your rooms but also protects your floors, wallpapers, furniture and plants from UV rays. Your interior furnishings will stay looking fresh and natural for longer.
Radio systems (unidirectional)
Unidirectional radio systems are designed for controlling sun shading products on one building level. Hand-held transmitters or weather stations send move commands to one or more receivers (sun shading products or lighting) via radio signal. The receiver implements the move command – the sun shading unit is moved into position, the light is switched or dimmed.

Transmitters
(e.g. hand-held transmitters and weather station) transmit move commands via radio signal

Receivers
(e.g. plug receivers or flush-mounted receivers) execute move commands

radio signal
WAREMA control systems are used in various living and working environments. Radio systems, central control systems and bus systems fulfil the respective requirements in very different ways. The following overviews provide a basic insight into the functional principles.

Radio systems (bidirectional)

Compared to unidirectional radio systems, bidirectional radio systems have two additional functions. Upon receiving a move command the receiver turns into a transmitter itself. After executing the command it sends feedback to the operating panel, while at the same time forwarding the move command to other receivers. This forwarding – the signal routing – increases the range of the bidirectional radio system. This makes it possible to control even more distant receivers on several levels. In addition current weather data from weather stations are used as a basis for automatic move commands.

**Transmitters**
(e.g. hand-held transmitters, central control unit and weather station) transmit move commands via radio signal; hand-held transmitters and central control unit additionally receive feedback about executed commands

**Receivers**
(e.g. plug receivers or flush-mounted receivers) execute move commands, send feedback to the operating panel and forward radio signals to other receivers
Central control systems

A specific feature of central control systems is the use of separate control lines for each channel. Based on current weather data the central control unit automatically triggers move commands. They are transmitted to motor control units (MSE) on up to four channels. All sun shading products connected to the controlled channel execute the move command.

Weather station
transmits current weather data to the central control unit

Central control unit
processes weather data and triggers move commands

Motor control unit
receives move commands on up to four channels and executes them

Control line
separate control lines for each channel transmit the move commands
Bus systems

In contrast to central control systems, bus systems use only one line – the bus line – for transmitting all weather data and move commands. Current weather data are transmitted to the central control unit or directly on the bus line (depending on the bus system). Each actuator in the system is equipped with a logic to filter the signals intended for it from the bus system and independently triggers the move commands for all connected products (sun shading, light, window etc.).

- **Weather station**: transmits current weather data to the central control unit or directly to the bus line
- **Central control unit**: controls individual sun shading products and other systems directly and allows configuration of the system
- **Actuator**: filters signals intended for it from the bus line and independently triggers move commands for connected products
- **Bus cable**: transmits all data which are managed in the central control unit and executed by the actuator
Areas of application – WAREMA control systems in practical use.

The right WAREMA control system for your area of application

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- standard - (unfavourable)
WAREMA control systems are at home in various areas of application. Find the right system for your individual requirements – whether at home or at the office, for renovations or retrofitting.

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Radio systems
EWFS and WMS, the WAREMA radio systems, unite convenience and excellent expandability. They control your sun shading or lighting conveniently via radio signal. Individual control requirements can be realised by both systems using state-of-the-art technology. The individual components are mounted directly on the sun shading product using plug & play. Expensive cable routing is not required – ideal for retrofitting projects.
EWFS – flexible radio control for your sun shading.

EWFS, the standardised WAREMA radio system, is used for remote controlling of sun shading and lighting. Using the control is just as comfortable and easy as e.g. the operation of your TV device. EWFS solutions are particularly practical for expansion and retrofitting: Wireless components and various control options allow subsequent expansion of your individual sun shading system with minimum installation work.

**Benefits**
- ideal for expanding and retrofitting
- individual expansion of the control with minimum installation work
- convenient radio remote control of sun shading units
- switching and dimming of light possible
- simultaneous operation of several receivers by pressing just one button
- complete product range for controlling sun shading products such as external venetian blinds, awnings or roller shutters
- additional components available for expansion, e.g. radiant heater control for patio awnings

**Features**
- transmission frequency: 433.92 MHz
- one EWFS transmitter controls any number of receivers

**control functions:**
- brightness
- wind
- precipitation
- time
- dawn/dusk using astro function

**Typical applications**
- one-family houses
- renovation
- retrofitting
EWFS system components

1. EWFS timer
2. EWFS wall-mounted transmitter
3. EWFS hand-held transmitter
4. EWFS weather station eco
5. EWFS weather station plus
6. EWFS plug receiver
7. EWFS flush-mounted receiver
WMS — mobile control for discerning requirements.

The WAREMA Mobile System unites modern technology and aesthetic design in a radio remote control for discerning requirements. In the WAREMA Mobile System the only components needed are the transmitter and receiver. Distant systems can also be reached by transmitting commands from receiver to receiver (routing function). Users receive feedback about all move commands of their sun shading units.

Benefits
- larger range through intelligent routing function
- optical feedback of the executed move command
- Control via smartphones or iOS app
- scene control for up to 32 different scenes
- Move to individual comfort positions at the press of a button
- commissioning and changing of limit values possible via PC
- individual expansion of the control with minimum installation work
- window control possible

Features
- transmission frequency: 2.4 GHz
- control of sun shading products on up to 96 channels
- offers maximum protection against unauthorised controlling

control functions:
- brightness
- wind
- precipitation
- time
- dawn/dusk
- outside temperature
- ice monitoring

Typical applications
- one-family houses
- multiple occupancy buildings
- renovation
- retrofitting
WMS system components

- WMS hand-held transmitter
- WMS hand-held transmitter basic
- WMS wall-mounted transmitter
- WMS central transmitter
- WMS WebControl
- WMS weather station eco
- WMS weather station plus
- WMS actuator UP (WMS transmitter UP)
- WMS plug receiver
- WMS power socket
- WMS wind sensor for patio awnings
- WMS stick with free WMS software
Central control systems
WAREMA central control systems meet individual requirements. Our central control systems are ideally suited for anything from individual awnings to thousands of sun shading products.
WAREMA timer and WAREMA Comfort timer – timed control.

WAREMA timer and WAREMA comfort timer provide reliable control for your sun shading according to time and dusk/dawn data. The best possible reaction to summer midday sun or bitterly cold winter nights also reduces your energy costs and improves the climate in the building. Efficient occupancy simulation protects your property against unwanted intruders.

Benefits
- intelligent occupancy simulation – the house appears occupied even when you are not at home and is protected against burglars
- automatic switching between summer and winter time
- astro function optimally adapts move commands to dawn/dusk times

Features
- Mounting in standard device box
- operation via EWFS hand-held or wall-mounted transmitter possible
- floating output allows direct control of the sun shading system drive independent of the required voltage
- timer: programmable for individual weekdays, weekend and the entire week
- control functions:
  - time
  - dawn/dusk

Typical applications
- one-family houses
- new buildings
- renovation
Minitronic dialog – setting awnings and external venetian blinds in motion.

The central control unit Minitronic dialog was specially designed for awnings and external venetian blinds. When the sun is uncomfortably bright the sun shading system is automatically moved into position while you relax in the shade. During strong wind and rain Minitronic dialog protects your awnings and external venetian blinds against damage.

Benefits
- Tilting the external venetian blind slats at the central control unit or conveniently using the EWFS hand-held transmitter
- preset parameters prevent the overheating of the building and protect the sun shading system against damage due to wind and precipitation
- easy setting and changing of limit values on the display

Features
- Mounting in standard device box
- operation via EWFS hand-held or wall-mounted transmitter possible
- control functions:
  - brightness
  - wind
  - precipitation

Typical applications
- one-family houses
- new buildings
- renovation
Wisotronic is an intelligent control system for your individual sun shading combination. It is suitable for all WAREMA products and at home in various environments. The control system provides a comfortable room climate and a pleasant living or working environment, even when you are busy or not at home. The design provides visual highlights – it received the iF product design award 2012.

**Benefits**
- easy commissioning using the quick start menu (ready to operate after 5 settings)
- 4 adjustable scenes create an individual feel-good atmosphere
- temperature sensor integrated into the operating panel
- weather data such as temperature or wind speed displayed on the operating panel
- integrated timer
- integrated ice monitoring protects sun shading products against damage
- system can be expanded or extended at any time
- high-gloss surface provides visual highlights in the living area
- operating panels available in black or white

**Characteristics**
- operation via EWFS hand-held or wall-mounted transmitter possible
- 1-4 channels for controlling different sun shading products or facade sides

**Typical applications**
- one-family houses
- multiple occupancy buildings
- office buildings
- new buildings
- Retrofitting

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**Wisotronic – visual highlights and ingenious functionality – award winning**
Quatronic dialog – facade control for complex requirements.

Quatronic dialog is a perfect partner for facade controls: It automatically positions any number of sun shading products, providing your facade with a harmonious appearance and making a positive impression. Pre-programmed control functions for all WAREMA products and particularly user-friendly operation make it easier for you to realise your individual requirements.

Benefits
- automatic tilting of external venetian blind slats upon reaching the lower end position
- presets for all common sun shading products
- automatic switching of the clock from summer to winter time as well as updating after power failures using the integrated radio clock receiver
- perfect for use in workshops and production facilities

Features
- 1-4 channels for controlling different sun shading products or facade sides
- can be mounted in a control cabinet
- compact housing combines operating panel and power unit

control functions:
- brightness
- wind
- precipitation
- time
- outside temperature
- inside temperature
- humidity
- ice monitoring

Typical applications
- office buildings
- new buildings
- renovation
System components for central control systems.

You determine the area of application and the functionalities of your central control system using the WAREMA system components. Central control units are the functional framework which you can fill with weather stations, sensors and motor control units as required. This creates a powerful control system to match your individual requirements and needs.

**Weather station multisense**
- provides data for wind, precipitation, outside temperature, brightness, dawn/dusk
- detects ice formation
- Photo sensors for measuring brightness in 4 compass directions
- exclusively for connecting to WAREMA Wisotronic using 4-core connecting line

**Other weather stations**
- depending on type for monitoring inside and outside temperature, humidity, wind speed, brightness, precipitation
- compatible with Minitronic dialog, Wisotronic 2 - 4 channel, Quatronic dialog, WAREMA climatronic®, depending on type

**Motor control units and floor distribution controls**
- transmit move commands from central control units to sun shading products
- individual and multiple control units available for various combinations
- connection of standard sun blind switches to motor control units possible
- motor control units available in different mounting variants
- designed for central control systems
System components

1. Quatronic dialog AP
2. WAREMA comfort timer
3. Minitronic dialog
4. Wisotronic
5. EWFS hand-held transmitter
6. weather station multisense
7. motor control unit for flush mounting
8. motor control unit for surface mounting
9. motor control unit for installation in electrical distribution cabinet
WAREMA climatronic® 2.0 meets highest control requirements in home and office environments. As a bus system it coordinates your WAREMA products and other systems in your building. WAREMA climatronic® with its numerous individually configurable control options, up to 7200 controllable products and the modern, timeless design implements the advantages of a high-end sun shading system control for large buildings and sophisticated homes.
WAREMA climatronic® 2.0 – complete control for optimum climate.

WAREMA climatronic® 2.0 coordinates your sun shading system with heating, air conditioning and ventilation systems to create the best possible room climate. In smaller and larger buildings it monitors and controls according to environmental influences which have an effect on your well-being. Humidity, temperature or light intensity are controlled according to your preset values. Intuitive operation makes it easy to create your personal preferred climate for working and relaxing.

**Benefits**
- slat tracking according to sun position allows best possible light gain and prevents direct glare
- switching and dimming of light possible
- up to 16 channels can be set
- settings using free software and operating panel:
  - convenient adjustment at any time
  - can be saved to and loaded from an SD card
  - prevents re-wiring when user requirements change
- using the operating panel as KNX central control unit via KNX Gateway
- use as KNX central control unit requires no commissioning tool and allows user changes

**Features**
- channels can be operated via EWFS transmitter
- operating panel with control wheel, sensor keys, glass front and 5.7” TFT colour display

- up to 7200 individual products are controlled on 64 channels in individual or group circuits
- Sensors for inside temperature and humidity are already integrated into the operating panel

**Typical applications**
- one-family houses
- multiple occupancy buildings
- office buildings
- new buildings
- renovation
System components

- WAREMA climatronic® 2.0 operating device
- WAREMA climatronic® switch actuator for installation in electric distribution box
- EWFS hand-held transmitter
Bus systems
The communication between sun shading, heating and air conditioning allows implementation of highly complex control requirements for commercial buildings. WAREMA components integrate perfectly into KNX or LonWorks® networks using standardised interfaces. So you can benefit from proven WAREMA quality in all areas of building automation. When living and working in “intelligent buildings” as well as when controlling event scenes in large commercial buildings.
In an “intelligent” building different systems are networked to be able to automatically react to their individual requirements. While you are away, the KNX system provides best possible energy efficiency: When you leave your home or your office, roller shutters are lowered, heating and other energy consuming devices are switched off – without any effort from you. With WAREMA you can integrate your sun shading system into the building network and experience the future of living and working today!

Benefits
- Using the WAREMA climatronic® 2.0 operating device as KNX central control unit via KNX gateway
- use as KNX central control unit requires no commissioning tool and allows user changes
- future-proof by using the international automation standard KNX
- compatibility across manufacturers of KNX products
- suitable for modern living and working environments of any size
- long-standing experience ensures ideal interplay between WAREMA sun shading systems and KNX compatible devices
- changed user requirements can be easily implemented using the software, no re-wiring necessary

Features
- can be controlled with EWFS transmitters
- combination of any number of WAREMA sun shading products and other systems (heating, cooling, light etc.) in the KNX network
- individually programmable control scenarios
- use of modern network technology for fast signal transfer
- acquisition of measuring data from networked weather stations and other sensors
- modern operating equipment makes operation and changing of settings easier without additional software

Typical applications
- One-family house
- multiple occupancy buildings
- office buildings
- new buildings
- renovation

Application example:
Sun shading products and lighting are automatically controlled in an office using KNX technology. The required weather data are provided by a networked weather station.
Sensor Interface

Netzteil 24V DC 2,5A

230 V/AC

KNX MSE 6/8M230

230 V/AC

230 V/AC

230 V/AC

230 V/AC

KNX Gateway (max. 4 Stk. pro WAREMA climatronic®)

climabus

KNX Dimmaktor

KNX Bus

KNX Datenschnittstelle

KNX Spannungsversorgung
LonWorks® technology –
customised solutions for complex requirements.

Many different technologies come together in building automation. LonWorks® ensures that trades as varied as sun shading system, heating, cooling and also lighting work together without problems. This opens up various possibilities: For example windows and outside doors are closed when a storm comes up, the sun shading system is moved into the safe position – damage and danger are avoided. All products with LonWorks® standard work together regardless of the manufacturer. That means you can benefit from proven WAREMA quality for the automation of your building.

Benefits

- future-proof by using the international automation standard LonWorks®
- all LonWorks® products from any manufacturer work together
- flexible setup via software eliminates re-wiring for changed user requirements
- LON motor control units are available for all WAREMA products
- storing individual settings in the LONMSEs allows decentralised evaluation and control of signals, independent of a central control unit

Features

- can be controlled with EWFS transmitters
- combination of any number of WAREMA sun shading products and other systems (heating, cooling, light etc.) in the LonWorks® network
- functionalities such as annual shading and cut-off position can only be implemented with LON

Typical applications

- office buildings
- new buildings
- renovation

Application example:
LonWorks® technology controls windows, sun shading, ventilation, light and heating together in the office. Sensors connected to the network transmit the required control data to the individual actuators via the bus cable.
WAREMA bus systems meet the highest requirements – not only for sun shading. Numerous system components allow you to create a control system which provides exactly what you need. From basic functionalities and the provision and use of different climate data to every single control element.

**LONVCU**
- universal operating panel for LonWorks® systems
- individual, freely configurable user interface
- controlling all integrated systems

**LONEWFS and KNX EWFS receiver**
- integration of EWFS transmitters in LonWorks® and KNX networks

**Actuators**
- transmit commands to sun shading products and other systems
- for LonWorks® or KNX networks, depending on type
- available in different housing variants for various requirements and fields of application
- connection of standard sun blind switches possible

**Weather stations and sensors**
- record wind speed, brightness, precipitation, humidity, inside and outside temperature or other environmental factors, depending on product
- required for effective building automation
### Safety functions

#### Wind monitoring
The wind sensor records the wind speed and transmits it to the central control unit. Depending on the type of the controlled sun shading system, the central control unit contains a wind speed limit which triggers a retraction command when the limit is exceeded, preventing the sun shading control system from being damaged. The sun shading system cannot be operated during an active wind alarm.

#### Direction-sensitive wind monitoring
Exceptional building forms and local conditions can require to retract the sun shading system earlier in the case of occurring wind from a defined wind direction at especially endangered places. This function is taken over by the direction-sensitive wind monitoring.

#### Precipitation monitoring
The precipitation sensor registers rain and snow. It returns these data to the central control unit which then moves the sun shading system to a safe position. The sun shading system cannot be operated during an active precipitation alarm.

#### Ice monitoring
When the outside temperature falls below the stored limit value while it is raining, the sun shading system is retracted in good time and blocked for use. This prevents damage to iced up sun shading systems.

### Energy efficiency/comfort function

#### Sun control
The sun control evaluates solar radiation. When the measured value exceeds the limit value or falls below it, the sun shading product is lowered or raised.

#### Dawn/dusk control
The dawn/dusk control provides the option of retracting the sun shading system at dawn and lowering it at dusk.

#### Time switch
The time switch moves the sun shading system up or down at pre-set times. Individual times can be stored for weekdays and weekend.

#### Control timer
The control timer enables the user to activate the comfort functions only at certain times.
### Energy efficiency/comfort function

#### Temperature control
There are temperature sensors for indoors and outdoors.

- **Activating the temperature control uses the inside temperature to enable the sun control or to issue a direct move command.**
- **The outside temperature is required for the ice monitoring safety function.**

#### Automatic differential temperature control
The differential temperature control activates window drives depending on the difference between inside and outside temperature. This functionality can be used to control e.g. ventilation windows in conservatories.

#### Humidity control
This control mode is especially suited for the use in conservatories, controlling fans and windows in addition to the sun shading system.

#### Intermittent ventilation
The intermittent ventilation to control window or fans at a channel with timing. On the one hand it serves to avoid mould formation due to air moisture or condensation and on the other hand to ensure a pleasant climate by means of sufficient fresh air supply in the rooms and conservatories.

#### Slat tracking
The sun height and/or the incidence angle of the sun is different every day, at every time of day and at every place. Therefore this function offers the possibility according to the geographical location and time, in connection with the sun automatics, to track the slats of the sun shading product depending on the current position of the sun. It ensures that no direct sunlight enters into the room through the slats. At the same time diffuse daylight is guided into the room to reduce the need for artificial lighting. Furthermore the slat tracking enables a maximum view outside without glare.

#### Astro function
Based on the geographical position of your home the integrated Astro program controls your sun shading system at dusk. The WAREMA Timer simply requires your postcode to automatically calculate sunset times at your location for every day of the year.

#### Occupancy simulation
This function allows automatic moving of the sun shading system randomly up to 30 minutes earlier in order to stimulate your presence like this - even if nobody is at home.

#### Manual operating function
Each central control unit offers the possibility to operate the respective channels with integrated up and down push-buttons.
## Everything at a glance
### Function overview

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*possible – not possible

1) Weather station multisense is included in the max. number of sensors
2) Optional photo sensor with suction cup for window pane
3) Integrated astro function
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<tr>
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<th>any number</th>
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<tr>
<td>433.92 MHz</td>
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</tr>
</thead>
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1)

Weather station multisense is included in the max. number of sensors

Optional photo sensor with suction cup for window pane

Integrated astro function

● possible

– not possible

\(^{\text{1}}\)Weather station multisense is included in the max. number of sensors \(^{\text{2}}\)Optional photo sensor with suction cup for window pane \(^{\text{3}}\)Integrated astro function
Good to know – a glossary of control systems

Basic knowledge

**Motor control unit (MSE)**
Motor control units receive move commands from the central sun shading control unit and implement these on the connected sun shading drives.

They are components of central control systems where the number of power consumers exceeds the number of channels.

As with actuators, conventional local push buttons can be connected to the motor control units for operation of the sun shading products.

**Actuator**
Actuators process commands which are transferred to a bus line. Communication on the bus is carried out using a protocol, similar to a PC. This makes it possible to send more information to the actuators than with a central control system.

**Floating contacts**
Floating contacts are used for transmitting electrical pulses. In practical use floating contacts are used for securely connecting devices which require different supply voltages and currents. WAREMA uses floating contacts for example for connecting central control units, motor control units and sun shading motors.

**Channel**
All products connected to a channel (sun shading, light, window etc.) exhibit the same behaviour for a control signal on the central sun shading unit (e.g. pressing a button, wind alarm etc.).

Practical example: All external venetian blinds on the south facade will be lowered upon reaching the brightness limit value.

**Group**
Several products (e.g. sun shading) or entire channels can be operated in groups with just one press of a button.

Practical example: All sun shading units in a room can be raised or lowered together using a central push button next to the door.

**Scene**
Scenes are the convenient operation of several different products or channels. Settings and positions can be stored in a scene and called again later on.

Practical example: When a scene is called on a sun shading control system the roller shutters are raised, the light is switched off and the windows are opened with motors.

**Transmission frequency**
Transmission or radio frequency is a measure for the speed with which commands are transmitted e.g. from a hand-held transmitter to a receiver.

The higher the frequency the more information can be transmitted within the same time span.

All transmitters and receivers in a radio system have to operate on the same transmission frequency. EWFS transmits on a frequency of 433.92 MHz, WMS on 2.4 GHz. That is the reason why the two radio systems are not compatible.
WAREMA control systems use modern technology to improve energy efficiency, room climate, comfort and security in buildings. The glossary of control systems provides information about basic interesting and important properties which allow effective controlling of sun shading, lighting or other systems – for more information and rational decisions.

**Housing**
Depending on the product different housing variants are available for different installation situations of the motor control units and actuators.

- **AP housing (surface mounted)**
  The housings are installed on top of the wall surface (plaster/plasterboard). That means the housing and possibly also the cables are visible. AP housings are easily accessible for maintenance purposes.

- **UP housing (flush mounted)**
  UP housings are installed underneath the plaster. They offer the same functionality as AP variants, but they are less visible and more suitable for the aesthetic requirements of modern office and living environments.

- **REG housing (DIN rail mounted)**
  DIN rail-mounted housings (REG) are installed in control cabinets, branch boxes or cable conduits.

**KNX**
KNX is the only open control standard for house and building systems according to EN50090. Sun shading and different systems are interconnected in the KNX network to create optimum climate conditions and maximise the energy efficiency of buildings. A special feature of KNX is the use of established LAN technology. It allows fast data transfer and flexible network structures. WAREMA KNX products are used to integrate sun shading and lighting into the KNX network.

**LonWorks®**
LonWorks® is an international software standard for networking different electronic devices and systems in the framework of building automation. The standardised software interface ensures that all connected products work together – independent of origin or manufacturer. This allows the creation of highly complex automation scenarios – for example the cut-off position for sun shading systems.
Good to know – a glossary of control systems

Expert knowledge

Cut-Off
When the sun shading units allow direct sunlight in to the room it will quickly heat up. The ideal slat position keeps direct sunlight away while allowing the room to be lit with diffused daylight. The required slat angle is called cut-off. It varies with weather and sun position. In terms of control technology the complex cut-off position can be implemented using a bus control with LonWorks® standard. It lowers energy consumption for air conditioning systems and lighting and helps to optimise the energy balance of the building.

The bus control also prevents the user from manually changing the sun shading system beyond this angle, ensuring that the energy balance does not deteriorate but is always optimally regulated by the control system.

Decentralised processing of measuring values
Decentralised processing of measuring values and information is carried out in the LONMSE. Individual values, e.g. wind and sun limit values, can be set for each controller or room or each product, as required for the system function. This form of sensor evaluation allows the implementation of completely individual settings for each curtain, making the user independent from the control system. In the end, each curtain will act as if an individual sensor was attached to it.

Annual shading diagram
The annual shading diagram allows optimisation of the sun shading system and/or the daylight system. The building and neighbouring properties are represented in a CAD program and a reference point is defined for each curtain/sun shading unit. WAREMA software calculates the daily and seasonal shading patterns for each reference point separately, determining the exact time of shading through other buildings or other parts of the same building for facades, levels or individual windows. The calculated shade patterns are stored as data in the actuators of the bus system. They are used as a basis for the exact control of each individual sun shading product. Shading only takes place when sunlight actually hits the reference point.

Slat tracking
The control moves the slats at the exact angle with the position of the sun even taking into account sunlight shining in a sloped direction from the side. This makes maximum possible use of daylight without sunlight entering the room directly. Sensors can be used to additionally record room brightness so artificial lighting can be switched on or off as required.