WAREMA
Control systems

Always live in the perfect climate.

Der SonnenLicht Manager

Smart Home

Experience the future

Want to just put your feet up and not worry about a thing? With Smart Home, these dreams will come true. Thanks to innovative technology, for example sun shading, lighting, heating and household appliances can be intelligently networked and can be easily controlled via smartphone or completely automatically – for a real feel-good home.

With WAREMA control systems, you always choose the perfect Smart Home solution – irrespective of whether simply through retrofitting, during renovation work or in new constructions.

Find the ideal solution for your project: **www.warema.de/smarthome**

More comfort

Always enjoy the perfect feel-good climate with individual automation based on the time of day, position of the sun and weather conditions.

More security

Thanks to sophisticated presence simulation and the avoidance of storm damage due to wind monitoring.

Greater efficiency

Heating, lighting and sun shading control themselves depending on environmental influences and thus save real money.

Greater pleasure of use

With just one intuitive app for sun shading, lighting, household appliances and much more.

Instead of manually moving individual sun shading products or shades on entire facade sides into the desired position, the sophisticated control systems from WAREMA automatically ensure that you have the perfect feel-good climate at all times of the day. Starting with radio systems and central control systems for residential complexes or office buildings, right up to networked building control systems, WAREMA offers the right solution for all requirements – for enhanced quality of life and energy efficiency.

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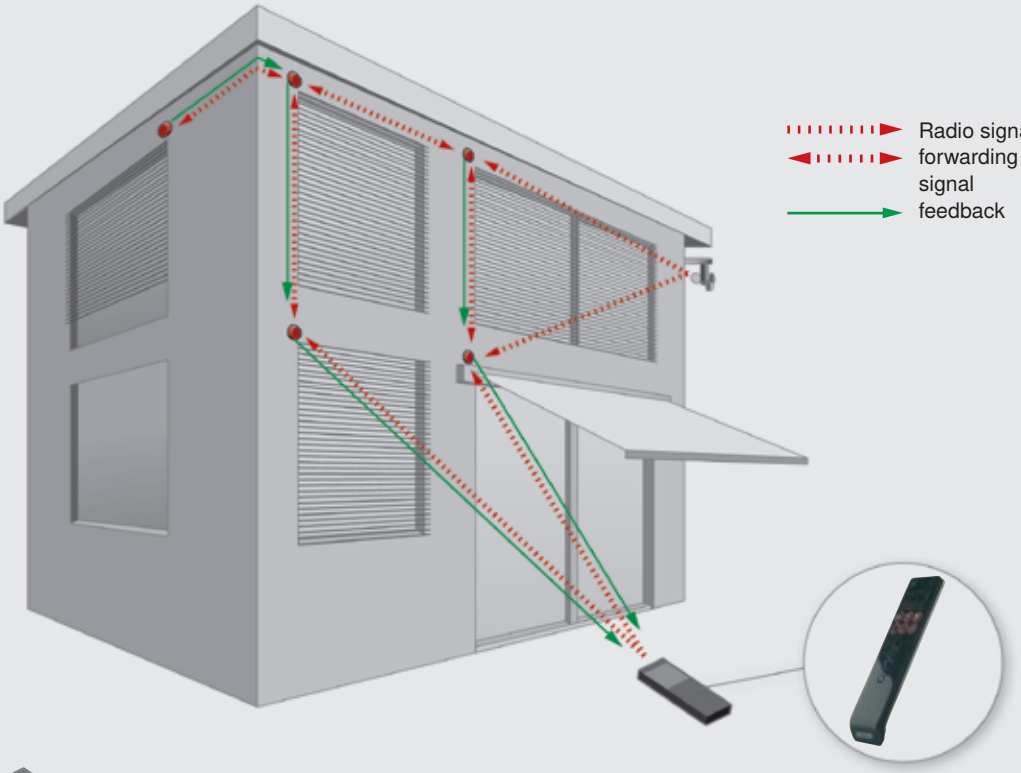
Control systems

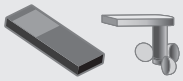
Fields of application and functional principles

Control systems from WAREMA are used in diverse living and working environments. Radio systems, central control systems and bus systems deliver what is required of them in very different ways. Find the right system for your individual needs here – whether in the home or an office building, for renovation or retrofitting. You can gain an insight into the fields of application and their functional principles in the following overviews.

Fields of application

		Product description	One-family house	Multi-family house	Office building	New building	Renovation	Retrofitting
Radio systems	WMS	see page 14	●	●	●	●	●	●
	EWFS	see page 16	●	–	–	–	●	●
Central control systems	WAREMA Timer WAREMA Comfort Timer	see page 20	●	–	–	●	●	–
	Minitronic dialog	see page 21	●	–	–	●	●	–
	Wisotronic	see page 22	●	●	●	●	●	–
WAREMA climatronic®	WAREMA climatronic® 3.0	see page 28	●	●	●	●	●	–
Bus systems	KNX technology	see page 32	●	●	●	●	●	–
	LonWorks® technology	see page 34	–	–	●	●	●	–





Transmitters and sensors

(e.g. hand-held transmitter, central control unit and weather station) transmit move commands or weather data via radio signal; hand-held transmitters and the 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 control panel and forward radio signals to other receivers

Radio systems (unidirectional)

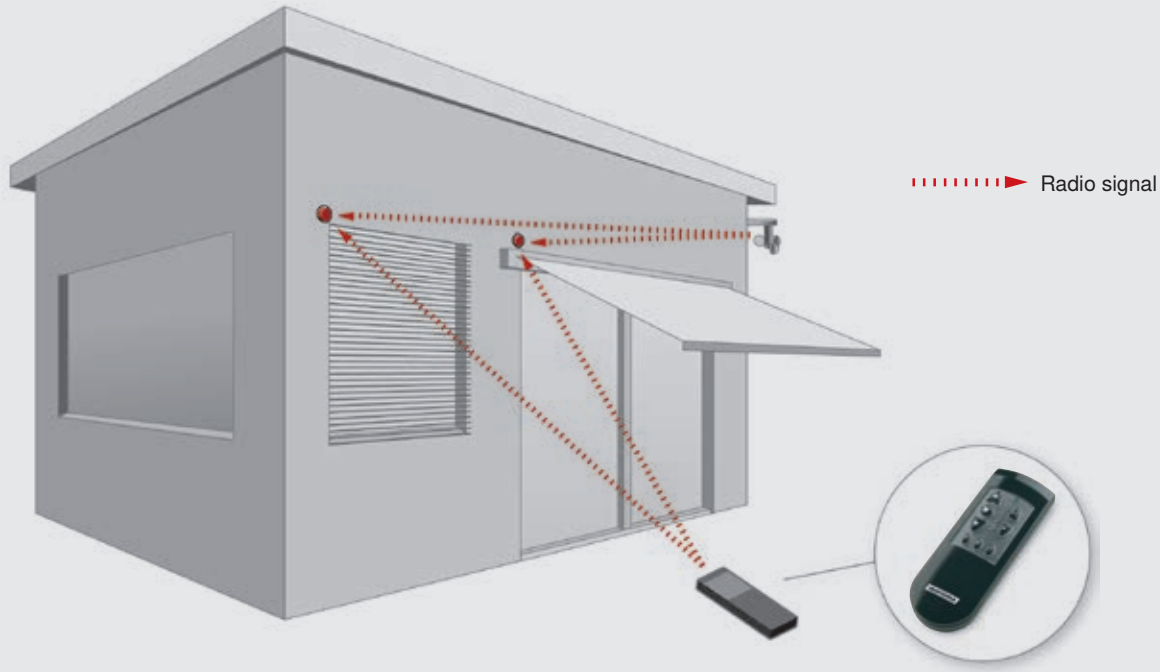
Unidirectional radio systems are designed for controlling sun shading products on one building level. Hand-held transmitters or weather stations use radio signals to send move commands to one or more receivers (sun shading products or lighting). The receiver executes the move command – the sun shading system is moved into position, the lighting is switched or dimmed.

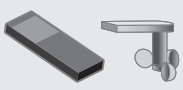
Standardised WAREMA Radio System (EWFS)

Radio systems (bidirectional)

Bidirectional radio systems are based on current standards. Thanks to the routing function, commands are transmitted from one receiver to another, which means that even far distant products can be reached. This allows fail-safe distribution of the radio signal, even in high-demand situations. The receivers confirm received and executed commands and report these back to the transmitters.

WAREMA Mobile System (WMS)



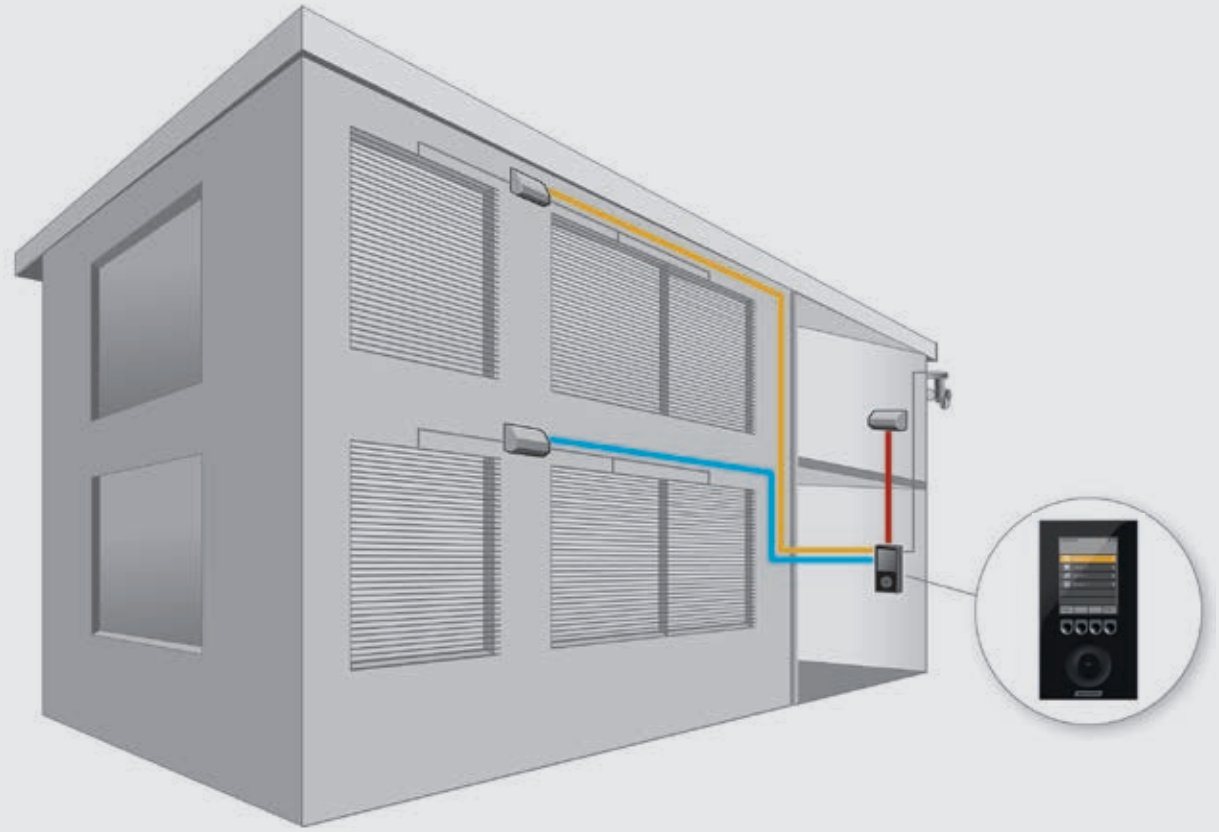


Transmitters and sensors

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

Receivers

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



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

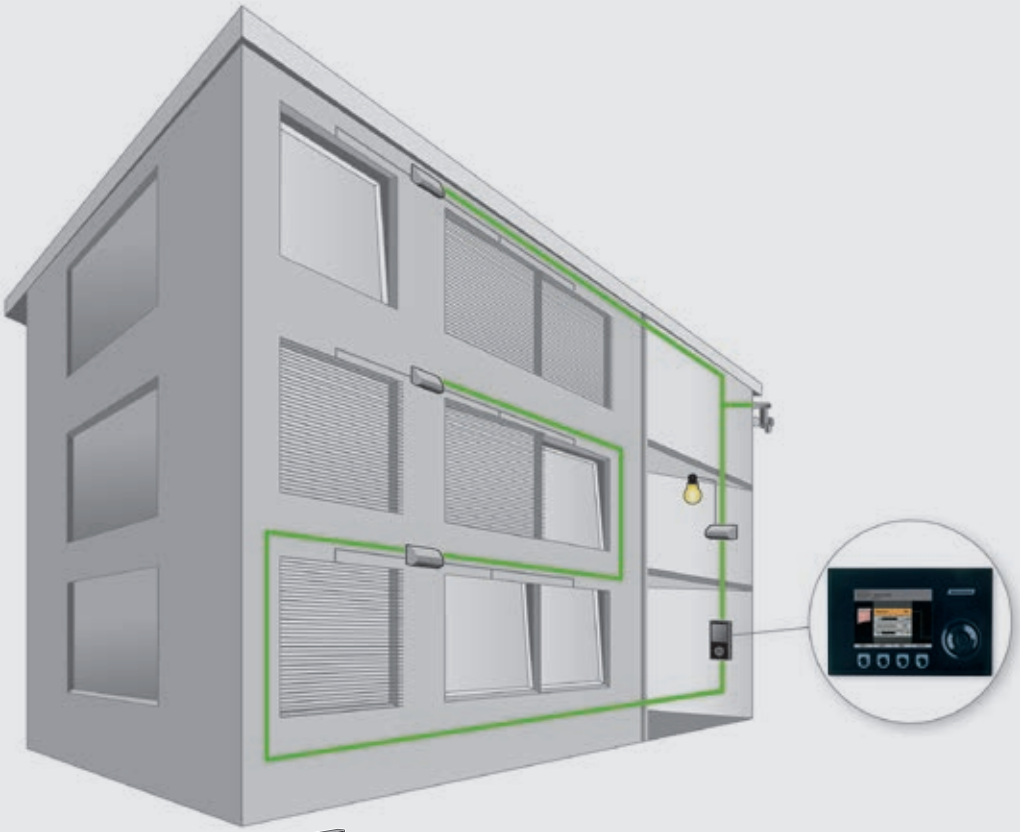
In contrast to central control systems, bus systems use only one line – the bus line – to transmit all weather data and move commands. Current weather data is transmitted to the central control unit or directly on the bus line (depending on the bus system). Every actuator in the system has the intelligence to filter certain signals intended for it out of the bus line and independently triggers move commands for all connected products (sun shading system, lighting, windows, etc.).

WAREMA climatronic® 3.0

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 the motor control units (MSE) on up to four channels. All sun shading products that are connected to the controlled channel execute the move command.

Wisotronic, WAREMA Timer, Minitronic



Weather station

transmits current weather data to the central control unit or directly on 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 actuators

Radio systems
Simply convenient

WMS and EWFS, the WAREMA radio systems, unite convenience and excellent expandability. They control your sun shading system or lighting conveniently by remote control. Individual control requirements can be realised using state-of-the-art technology. The individual components are installed directly on the sun shading product using plug & play. Also ideal for retrofitting, thanks to uncomplicated line routing.

NEW: WMS studio pro

Commissioning is now even easier and faster!

WMS – WAREMA Mobile System

The sophisticated Smart Home solution

The WAREMA Mobile System combines the most modern technology and aesthetic design into a radio remote control for high demands. Distant products can also be reached by transmitting commands from one receiver to another (routing function). The radio system works bidirectionally, which means that all WMS components confirm that a command is received and executed. Users therefore receive feedback about all move commands of their sun shading system.

WMS – maximum convenience and the greatest degree of flexibility

The benefits for you

- Longer operation range thanks to intelligent routing function
- Visual feedback signal of move command
- Control via Android app, iOS app or via Web browser
- 32 individual scenes possible
- Move to individual comfort positions at the press of a button
- Commissioning and changing of limit values possible via computer
- Control can be extended individually with minimal installation work
- Control of sun shading products, lights and windows on up to 96 channels for up to 200 receivers per network

Transmission frequency	2.4 GHz
Channels	96 channels for controlling different sun shading products, lights and more
Control functions	Brightness, wind, precipitation, time, inside temperature, dawn/dusk, ice monitoring (combination of outside temperature and precipitation)

WMS system components

1. WMS WebControl
2. WMS Hand-held transmitter basic
3. WMS Wall-mounted transmitter basic
4. WMS Hand-held transmitter plus
5. WMS Wall-mounted transmitter plus
6. WMS Hand-held transmitter
7. WMS Central transmitter
8. WMS Temperature sensor
9. WMS Weather station eco
10. WMS Weather station plus
11. WMS Actuator UP / WMS Actuator 24 V UP
12. WMS Plug receiver
13. WMS Wind sensor
14. WMS Stick
15. WMS Radio motor

EWFS – Standardised WAREMA Radio System

Flexible radio control

You can control your sun shading system and lighting remotely with EWFS, the Standardised WAREMA Radio System. Using the control is just as convenient and easy as e.g. operating your TV. EWFS solutions are particularly effective when it comes to expansion and retrofitting: wireless components and a wide range of control options allow you to expand your individual sun shading system later with minimal installation work.

The benefits for you

– Ideal for expansion and retrofitting
– Control can be extended individually with minimal installation work
– Switching and dimming of light is possible
– Several receivers can be operated simultaneously at the push of a single button
– An EWFS transmitter can control any number of receivers

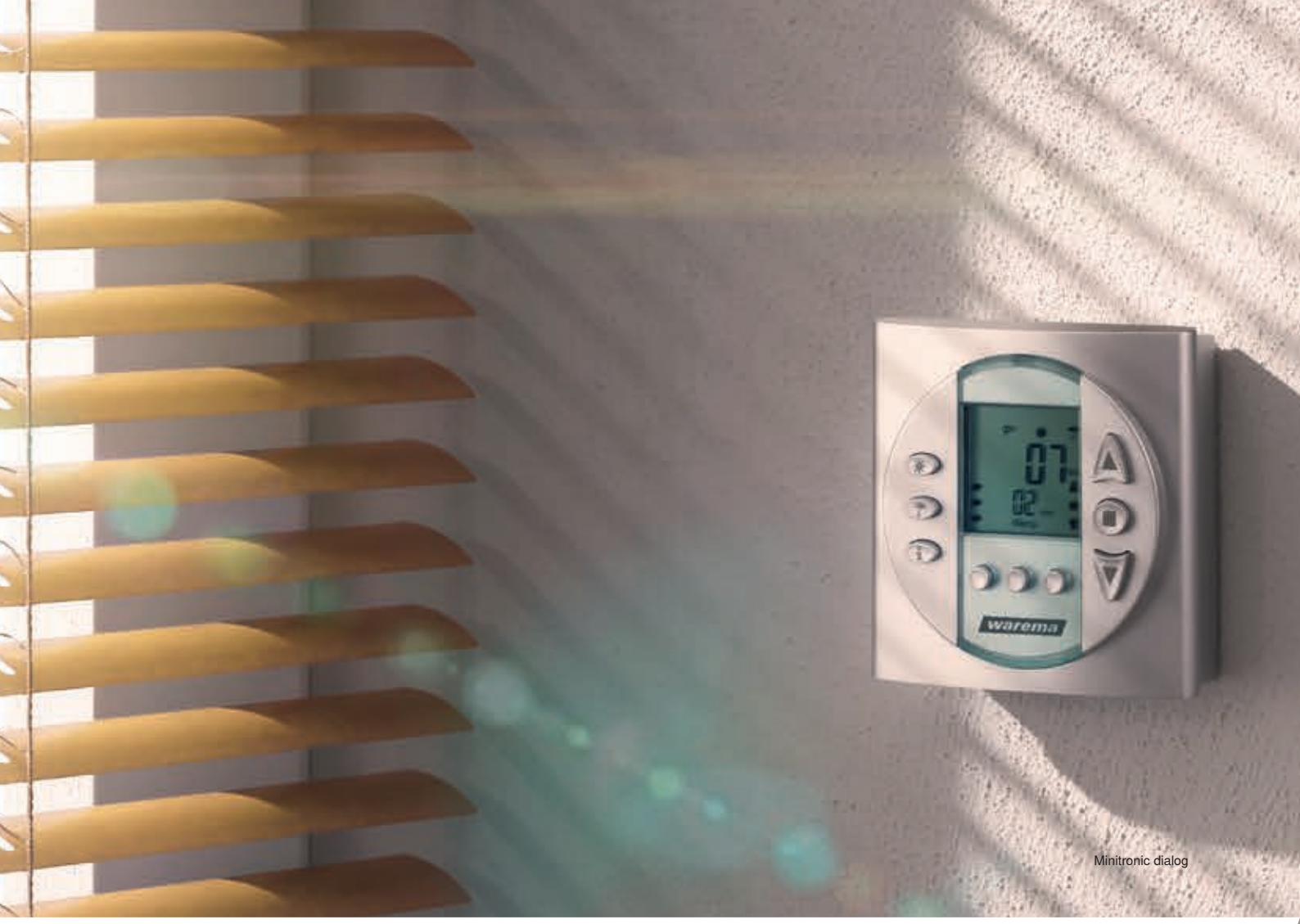
Transmission frequency	433.92 MHz
Channels	1-8 channels for controlling different sun shading products
Control functions	Brightness, wind, precipitation, time, dawn/dusk via Astro function

EWFS system components

1. EWFS Timer
2. EWFS Wall-mounted transmitter
3. EWFS Wall-mounted transmitter slim
4. EWFS Hand-held transmitter
5. EWFS Weather station eco
6. EWFS Weather station plus
7. EWFS Plug receiver
8. EWFS Flush-mounted receiver

Central control systems
Individual control solutions

Central control systems from WAREMA fulfil individual requirements. From the control of single awnings to thousands of sun shading products, our central control systems are ideal for any situation – both in the private and commercial field. From simply controlling your sun shading products based on set times of day to the control mode based on wind, weather and precipitation – Our wide range offers the right control system for every functional and installation requirement.



Minitronic dialog

WAREMA Timer and WAREMA Comfort Timer

More convenience and security

WAREMA Timers and WAREMA Comfort Timers ensure reliable time and dawn / dusk-dependent control of your sun shading system. An efficient response to midday sun in the summer or bitterly cold nights in the winter reduces your energy costs and improves the building climate. Your property is protected by effective presence simulation against unwanted ingress.

The benefits for you

– Intelligent occupancy simulation:
  the house appears to be occupied when nobody is home and is protected against burglars
– Automatic switching between summer and winter time
– Astro function adapts move commands perfectly to dawn / dusk times
– Time switch: programmable for individual weekdays, the weekend and the entire week
– A floating output allows the sun shading drive to be controlled independently of the required voltage

Installation	in standard switch box
Operation	directly on the timer or optionally via EWFS hand-held/wall-mounted transmitter
Channels	1 channel for various sun shading products
Control functions	Time, dawn/dusk

Minitronic dialog

Automation based on environmental influences

The Minitronic dialog was developed specially for awnings and external venetian blinds. If the sun shines uncomfortably brightly, the sun shading system automatically moves into position while you relax in the shade. The Minitronic dialog protects your awnings and external venetian blinds against damage in the event of strong wind and rain.

The benefits for you

– Tilting up of the slats via the central control unit or conveniently via the EWFS hand-held transmitter
– Pre-set parameters prevent overheating of the building and protect the sun shading system from damage caused by wind and precipitation
– Simple setting and adjustment of limit values on the display

Installation	in standard switch box
Operation	directly on the Minitronic dialog or optionally via EWFS hand-held/ wall-mounted transmitter
Channels	1 channel for various sun shading products
Control functions	Brightness, wind, precipitation

WAREMA Timer

Wisotronic
Wonderful functionality

Wisotronic is an intelligent control system for your individual sun shading combination. It is suitable for all WAREMA products and a wide variety of environments in the home. The Wisotronic provides a comfortable room climate and a pleasant living or working environment, even when you are busy or not at home.

The benefits for you

– Easy commissioning using Quickstart menu (ready for operation after 5 steps)
– 4 adjustable scenes create a feel-good atmosphere
– Display of weather data such as temperature or wind speed at control panel
– Integrated ice monitoring protects sun shading systems against damage
– The system is capable of being expanded and extended
– High-gloss surface finish sets visual accents

Installation	Control panel mounted in several different ways: surface mounted, flush-mounted or almost flush
Operation	directly on the central control unit or optionally via EWFS hand-held/wall-mounted transmitter
Channels	1-4 channels for controlling different sun shading products or facade sides
Sensors	Temperature sensor integrated into the control panel, additional sensors suitable for retrofitting
Control functions	Brightness, wind, precipitation, inside/outside temperature, time, dawn/dusk, ice monitoring, various ventilation functions for motorised windows

System components for central control systems

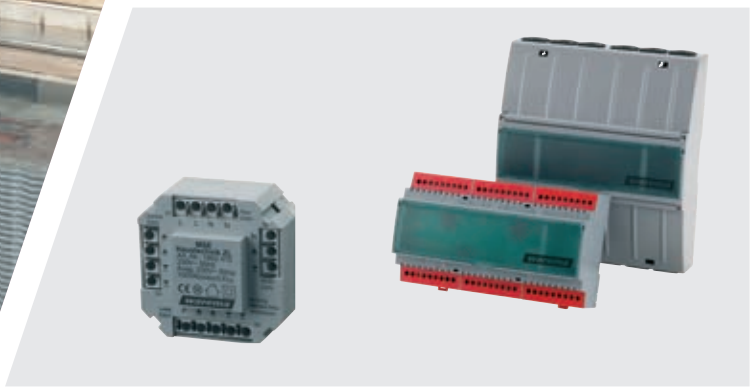
You determine the field of application and the functional scope of your central control system yourself using the WAREMA system components. Central control units are the functional framework which you can fill with weather stations, sensors and motor control units as required. This creates a powerful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

Weather station multisense

– Provides data on wind, precipitation, outside temperature, brightness, dawn/dusk
– Detects ice formation
– Photo-sensors for brightness measurement in 4 compass directions
– Exclusively for connection to WAREMA Wisotronic using 4-core connecting line

Additional sensors

– Depending on type, monitoring of inside and outside temperature, humidity, wind speed, brightness, precipitation
– Compatible with Minitronic dialog, Wisotronic 2-4 channel, 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 the widest variety of combinations
– Standard venetian blind switches can be connected to motor control units
– Motor control units available in different mounting variants (flush-mounted, surface-mounted, rail-mounted)

System components

1. WAREMA Comfort Timer
2. Minitronic dialog
3. Wisotronic
4. EWFS hand-held transmitter
5. Weather station multisense
6. Motor control unit for flush-mounting
7. Motor control unit in surface-mounted housing
8. Motor control unit for installation in electric distributor

WAREMA climatronic® 3.0

SunLight Management in perfection

WAREMA climatronic® 3.0 meets the highest control requirements in home and office environments. As a bus system, it coordinates your sun shading products and other components in your building. With numerous individually configurable control options, up to 7200 controllable products and its modern, timeless design, WAREMA climatronic® offers all the advantages of a high-end sun shading control system for large properties and sophisticated residential buildings.

Slat tracking according to the position of the sun allows for the best possible light yield and prevents direct glare

WAREMA climatronic® 3.0
Optimum climate

WAREMA climatronic® 3.0 coordinates your sun shading system in combination with air conditioning and ventilation systems to create the optimum room climate. It monitors and controls these in small and larger buildings according to ambient influences to provide a sense of well-being. Intuitive operation makes it easy to create your personal ideal climate for working and leisure.

SunLight Management in perfection with WAREMA climatronic® 3.0

The benefits for you

– Switching and dimming of light is possible
– Up to 16 scenes can be set
– Change settings at any time through free software and control panel
– Rewiring avoided when user requirements change
– Using the control panel as KNX central control unit via KNX Gateway
– Control via Android app, iOS app or via Web browser

Operation	Central control unit, app or optionally via EWFS hand-held transmitter
Control panel	5.7" TFT colour display with glass front, control wheel and sensor buttons
Channels	64 for up to 7,200 individual products in individual and group switching
Sensors	Inside temperature and humidity already integrated, additional sensors suitable for retrofitting
Control functions	Brightness, dawn/dusk, wind speed, wind direction, precipitation, time, outside temperature, inside temperature/humidity

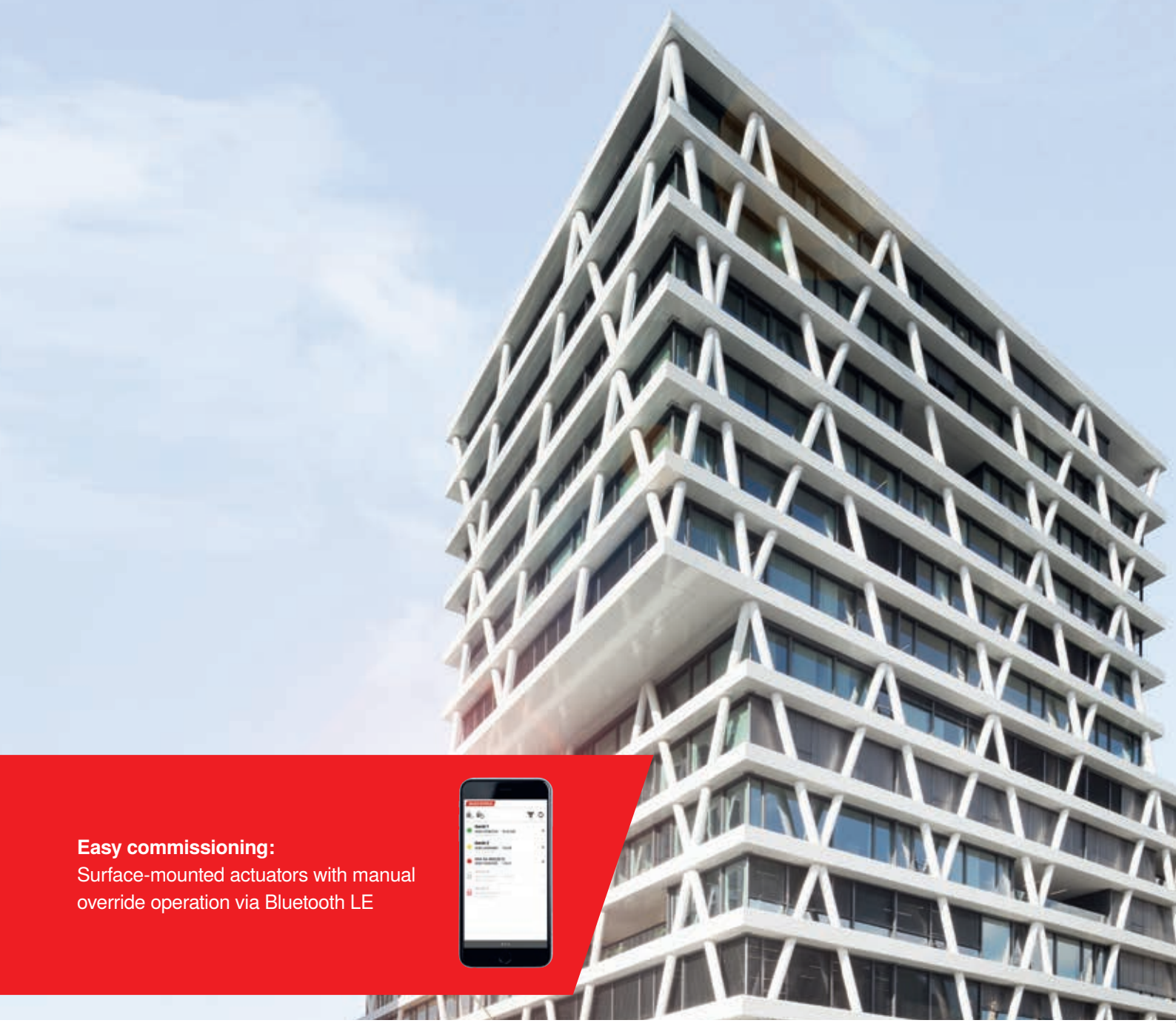
System components

1. WAREMA climatronic® 3.0 control panel
2. WAREMA climatronic® WebControl
3. WAREMA climatronic® switch actuator for the electrical distributor installation
4. WAREMA climatronic® weather station
5. EWFS hand-held transmitter

Bus systems

Automatic intelligent building

The communication between sun shading system, heating and air conditioning makes the implementation of highly complex control requirements possible in the commercial building sector. WAREMA components are perfectly integrated into KNX or LonWorks® networks using standardised interfaces. This allows you to benefit from proven WAREMA quality and years of experience in sun shading in all areas of building automation. When living and working in “intelligent buildings” as well as when controlling event scenarios in large commercial buildings.



Easy commissioning:
Surface-mounted actuators with manual override operation via Bluetooth LE

KNX technology

Future-orientated living and working

In an “intelligent building”, different systems are networked to be able to react automatically to your individual requirements. During your absence, the KNX system ensures optimum 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!

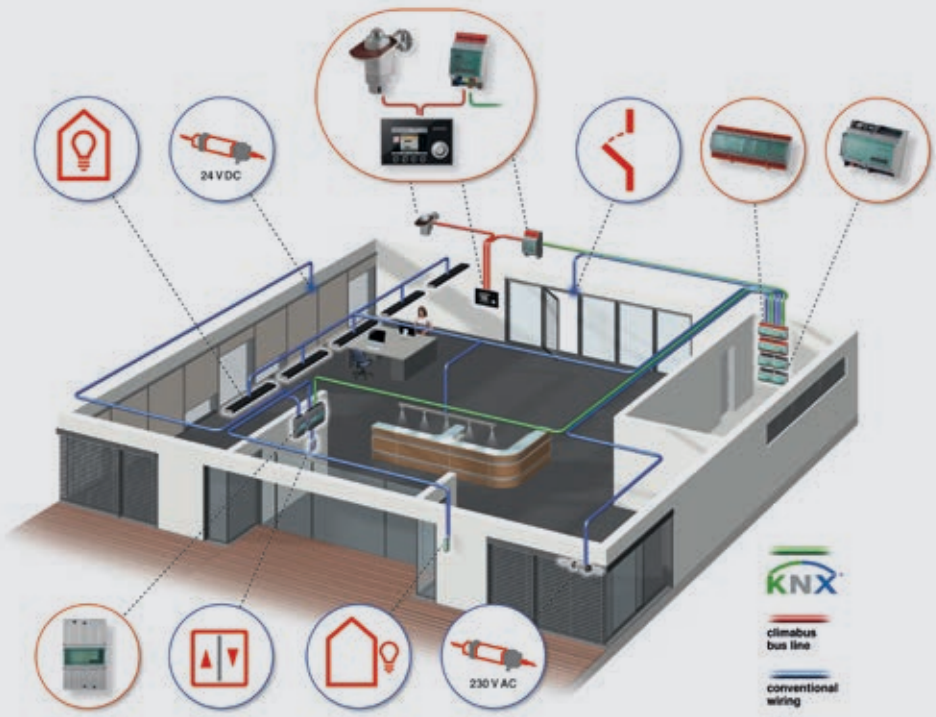
Unlimited possibilities with the KNX solutions from WAREMA

The benefits for you

– Combination of any number of products and systems (heating, cooling, light etc.)
– Compatibility across manufacturers for all available KNX products
– Simple planning for complex requirements
– Flexible expansion with additional components
– Changed user requirements can be easily implemented via software (ETS), no rewiring necessary
– Suitable for modern living and working environments of any size
– Use of WAREMA climatronic® 3.0 as central weather unit for KNX for operating the comfort and safety functions without ETS

KNX sun shading actuators

– Control of 2 to 8 sun shading drives with 230 V AC voltage or 4 sun shading drives with 24 V DC voltage (pole changer switching)
– Manual override operation and easy operation of the KNX programming button via smartphone (Bluetooth LE) – suspended ceilings or double floors are no problem with respect to commissioning
– Standard (venetian blind) push buttons can be connected via integrated binary inputs at the AP actuator (freely available on bus)
– Interchangeable miniature fuses for line protection of connected power consumers
– Activation or deactivation of the automatic inputs (e.g. sun control, slat tracking)
– Manual operation can be limited through automatic inputs (e.g. cut-off)



LonWorks® technology
Complex requirements

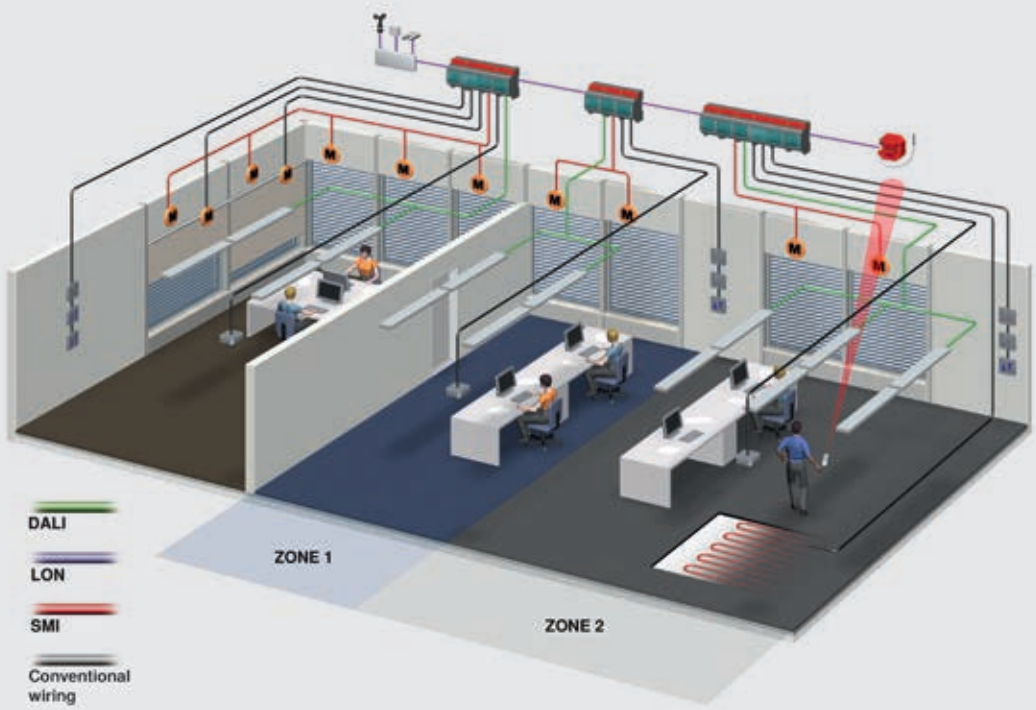
A wide range of technologies work side by side in the area of building automation. LonWorks® ensures that components as varied as sun shading systems, heating, cooling and also lighting work together without problems. This opens up many different options: for example, windows and outside doors close in the event of a storm and the sun shading system moves into its protective 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 construction project.

The benefits for you

– Combination of any number of products and systems (heating, cooling, light etc.)
– Cooperation of all LonWorks® products from any manufacturer
– Flexible adjustment using software means that rewiring is not required when user requirements change
– LON motor control units are available for all WAREMA products
– Storing individual settings in the LONMSEs allows decentralised control and evaluation of signals, independent of a central control unit
– Functions such as annual shading and cut-off position can be implemented using LON

LON actuators

– Transmit commands to sun shading products and other components
– Available in various housing variants for the most diverse requirements and fields of applications
– Connection of standard sun blind switches is possible



Everything at a glance – Function overview

		Radio systems		Central control systems		
		WMS	EWFS	WAREMA Timer	Time switch	Minitronic dialog
						
Product description		see page 14	see page 16	see page 20		see page 21
Control channels		200	1/8	1	1	1
Transmission frequency		2.4 GHz	433.92 MHz	–	–	433.92 MHz
EWFS compatible		–	●	–	–	●
Automatic factory settings for various sun shading products		●	–	–	–	–
Safety functions	Wind monitoring (max. connectable sensors)	●	●	–	–	1
	Direction-dependent wind monitoring	–	–	–	–	–
	Precipitation monitoring	●	●	–	–	●
	Ice monitoring	●	–	–	–	–
Energy efficiency / comfort functions	Sun control	●	●	–	●[2]	●
	Dawn/dusk control	●	–	●[3]	●[2]	–
	Time switch	●	●	●	●	–
	Control timer	●	–	–	–	–
	Temperature control according to inside temperature sensor	●	–	–	–	–
	Temperature control according to sensor Outside temperature	–	–	–	–	–
	Differential temperature control	–	–	–	–	–
	Humidity control	–	–	–	–	–
	Adjustable blind runtime	●	–	●	●	●
	Window control	●	–	–	–	–
	Interval ventilation	–	–	–	–	–
	Slat tilting	●	–	–	–	●
	Slat tracking	–	–	–	–	–
	Radio clock (DCF77)	–	–	–	–	–
	Dimming of light (230 V AC)	–	●	–	–	–
	Dimming of light (LED directly above dimmer)	●	–	–	–	–
	Switching of light (230 V AC)	●	●	–	–	–
	DALI	–	–	–	–	–
	Fan control	–	–	–	–	–
	Astro function	–	–	●	–	–
	Scenes	●	–	–	–	–
	Presence simulation	–	–	●	–	–
	History for measuring values and trigger events	–	–	–	–	–
	Annual shading	–	–	–	–	–
	Programmable functionality	–	–	–	–	–
Operation	Mobile remote control	●	●	–	–	●
	Central control unit / wall-mounted transmitter	●	●	●	●	●
	By smartphone, mobile terminal devices	●	–	–	–	–
	External channel push button connectible	–	–	–	–	–
	PC	●	–	–	–	–
	Control via BCS	–	–	–	–	–
	Data interface / remote access	–	–	–	–	–
Commissioning	Online via PC	–	–	–	–	–
	offline via PC	●	–	–	–	–
	Graphically programmable	–	–	–	–	–

● 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

Central control systems	WAREMA climatronic®	Bus systems		
Wisotronic	WAREMA climatronic® 3.0	KNX	LonWorks®	BAline
				
see page	see page 28	see page 32	see page 34	
1-4	64	any number	any number	any number
433.92 MHz	433.92 MHz	433.92 MHz		
●	●	●	●	●
●	●	●	●	●
4[1)]	12	●	●	●
–	●	●	●	●
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●
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–	●	●	●	●
–	–	● with KNXMCM	–	●
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–	–	● with KNXMCM	●	●
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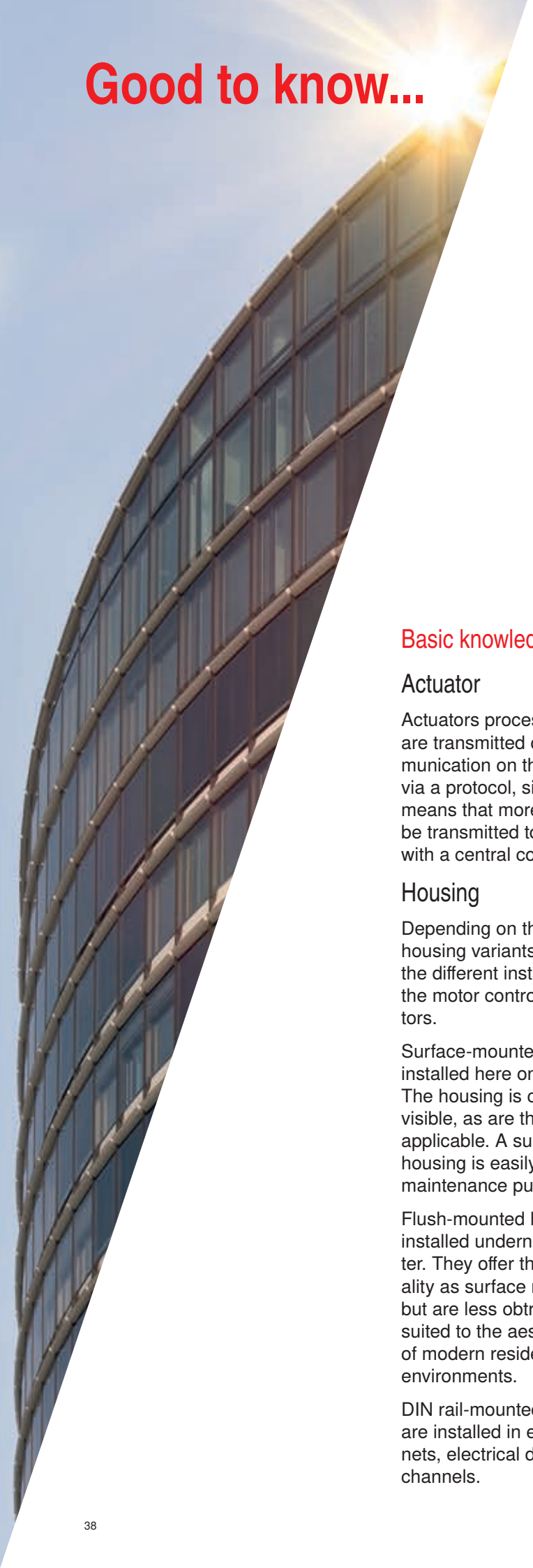
Good to know...



Basic knowledge

Actuator

Actuators process commands that are transmitted on a bus line. Communication on the bus is effected via a protocol, similar to a PC. This means that more information can be transmitted to the actuators than with a central control system.

Housing

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

Surface-mounted housing (AP) is installed here on the wall plaster. The housing is correspondingly visible, as are the laid lines where applicable. A surface-mounted housing is easily accessible for maintenance purposes.

Flush-mounted housings (UP) are installed underneath the wall plaster. They offer the same functionality as surface mounted variants, but are less obtrusive and more suited to the aesthetic requirements of modern residential and office environments.

DIN rail-mounted housings (REG) are installed in equipment cabinets, electrical distributors or cable channels.

Group

Several products (e.g. sun shading) or entire channels can be operated together in groups with just one press of a button. Example: all sun shading products in a room move up or down together by means of a central push button near the door

Channel

All products connected to a channel (sun shading, lighting, windows, etc.) behave identically in the event of a control signal to the sun shading control system (e.g. pressed button, wind alarm, etc.). Example: upon reaching the brightness limit value, all external venetian blinds on the south facade move downwards.

KNX

KNX is the only open control standard for house and building systems in accordance with EN50090. In the KNX network, sun shading systems and the widest variety of components are connected together to create optimum climatic conditions and to maximise the energy efficiency of buildings. A particular feature of KNX is the use of established LAN technology. It allows fast data transmission and a flexible network layout. KNX products from WAREMA serve for integration of sun shading systems and lighting in the KNX network.

LonWorks®

LonWorks® is an international software standard for networking the widest variety of electronic devices and components within the framework of building automation. The standardised software interface ensures that all connected products work together – independently of their origin or manufacturer. In this way, highly complex automation scenarios can be realised – for example, the Cut-Off position in the sun shading area.

Motor control unit (MSE)

Motor control units receive move commands from the sun shading control system and implement these for the connected sun shading drives. They are components of central control systems where more consumers are to be controlled than there are available channels in the central control unit. As with the actuators, standard on-site push buttons can be connected to the motor control units, via which the sun shading products can be operated.

Floating contacts

A floating contact serves for transmission of electrical impulses. In practice, floating contacts are used for the secure connection of devices that require different supply voltages and currents. WAREMA uses floating
contacts e.g. to connect central control units, motor control units and sun shading drives.

Transmission frequency

The transmission or radio frequency is a measurement of 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 in the same time. All transmitters and receivers of a radio system must be operated on the same frequency. EWFS transmits on a frequency of 433.92 MHz, WMS on 2.4 GHz. This is why the two radio systems are not compatible.

Scene

A scene is a convenient operation of several different products or channels. Settings and positions can be stored in a scene and called up again at a later point. Example: when calling up a scene in the sun shading control system, the roller shutters move upwards, the lighting is switched off and the windows are opened by means of motors.

On-site push button

The on-site push button is a manual switch for the operation of sun shading products. When pressed, it transmits move commands to individual sun shading motors and actuators, or ones that are connected via motor control units. On-site push buttons are used together with automated control systems to allow bespoke adjustment of individual sun shading elements.

Expert knowledge

Cut-Off

If the sun shading system allows direct sunlight radiation into the room, it heats up very quickly. An ideal slat position keeps out direct sunrays and at the same time provides room illumination with diffused daylight. The slat angle required for this is referred to as Cut-Off. It varies with the weather and the time-dependent position of the sun. With respect to control technology, the complex Cut-Off position can be realised via a bus control in accordance with the LonWorks® standard. It reduces energy consumption for air-conditioning systems and lighting and contributes towards optimisation of the building's energy balance. The bus control also prevents the user from manually adjusting their sun shading beyond this angle. This ensures that the energy balance is not worsened, but is always optimally set via the control.

Distributed measuring value processing

Decentralised processing of measured values and information is carried out in the actuator. For each controller or room, or for each product, individual values e.g. wind and sunlight limit values can be set in the actuator that are necessary for the system's functionality. This form of measuring value evaluation means that completely individual settings can be made for each curtain and the user is independent of the control. Ultimately, each curtain behaves as if an individual sensor was attached to it.

Annual shading diagram

The annual shading diagram allows optimisation of the sun shading and/or the daylight system. The building and its neighbouring buildings are depicted in a CAD program and a reference point is defined for each curtain / sun shading product. The WAREMA software separately calculates the daily and annual shading at each reference point. In this way, the exact shading point due to other buildings or parts of the same building are determined for facades, storeys or individual windows. The calculated shading is stored in the actuators of the bus system as data; it serves as a basis for the precise control of each individual sun shading product. Shading is only provided when the sun actually shines on the reference point.

Slat tracking

The control system tracks the position and angle of the sun and moves the slats accordingly. It even takes into account sunlight shining in from the side when doing so. This produces the maximum possible use of daylight without sunrays entering the room directly. Sensors can also detect the level of brightness in the room to switch artificial lighting on or off as required.

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