



**2009**  
**MODULAR**  
**ELECTRONIC DEVICES**



[www.elkoep.com](http://www.elkoep.com)

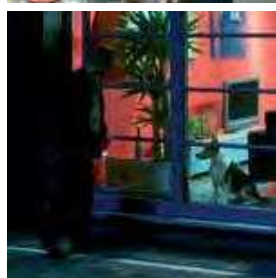


**TECHNICAL**  
**CATALOGUE**



# Intelligent and comfortable electrical installation

System of an intelligent electrical installation INELS manages functions of your house starting from heating and air-conditioning regulation, control of lights, shutters and other appliances up to house security and protection of your property. It is able to recognize changes of system functions in comparison with required state and inform you about these changes by a mobile phone, PDA or Internet just in time.



INELS is designed to satisfy small electrical installations and find solution and control for large units involving automation and complexity. INELS can be used not only for houses, apartments, administrative and sales premises, but also for large buildings or complex of buildings and industrial areas.

## System functions

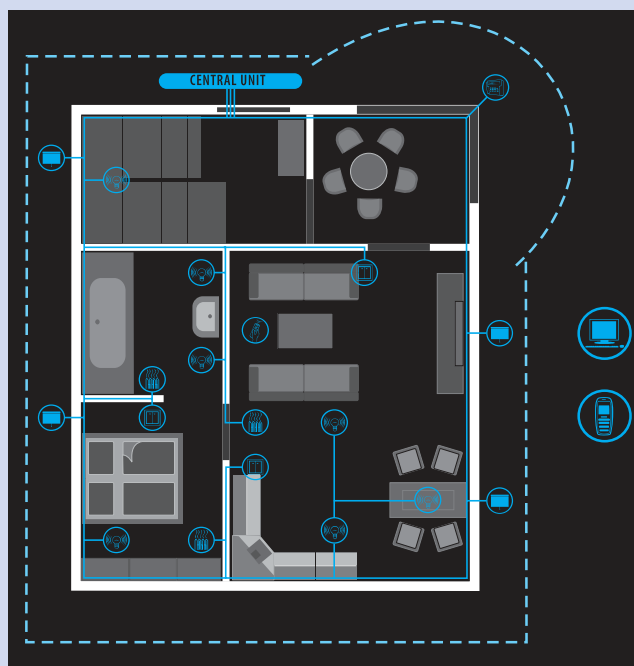
- ↘ Light control
- ↘ Regulation of heating and air-conditioning
- ↘ Control of external shutters
- ↘ Security system
- ↘ Simulation of presence
- ↘ Central control
- ↘ Control of appliances

## System heart And brain

**INELS®**



Central unit is a basic element of an intelligent electrical installation INELS. It governs all system components and supervises the whole system. Central unit is placed in a switchboard and can be connected with a computer or operated remotely by Internet of GSM gate (SMS messages).



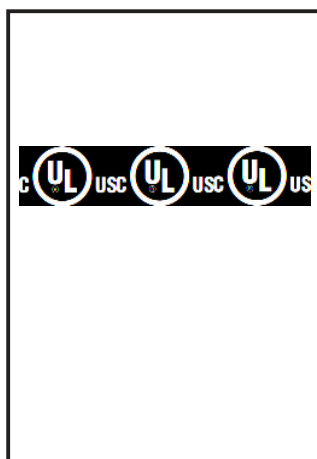
## Remote control of the whole system

- ↘ Internet (PC, PDA), SMS text messages

## INELS in interior

- ↘ Wall-switch controllers WSB
- ↘ Wireless controllers
- ↘ Room thermo-regulator
- ↘ SOPHY unit for voice control and remote control
- ↘ Universal remote (IR) controller
- ↘ Security keyboard
- ↘ „Touch screen panel“ for complete control of the whole system by program INELS Designer and Manager (IDM).












# ***Modular electronic devices***



TIME RELAYS  
POWER AND AUXILIARY RELAYS  
DIMMERS  
POWER SUPPLIES  
MONITORING VOLTAGE RELAYS  
MONITORING CURRENT RELAYS  
LEVEL MONITORING LEVEL  
THERMOSTATS






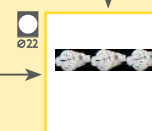
# Time relays

## Single-function

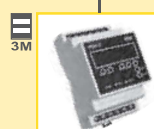
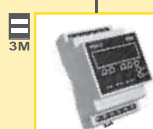

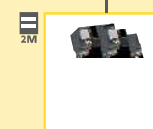
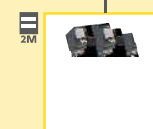
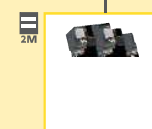
 <b>CRM-81J</b> 3 functions and 10 time ranges, multivoltage or 230V supply, output 16A changeover. Page 37-38	 <b>CRM-83J</b> as CRM-81J but with 3x8A changeover output. Page 37-38	 <b>CRM-82TO</b> "true OFF" relay - delay off without supply, for back-up circuits. Page 39	 <b>SJR-2</b> two-state delay unit (2x delay on), gradual switching of high loads. Page 40	 <b>CRM-2T</b> delay start-up of motors star/delta. Page 41	 <b>CRM-2H</b> asymmetric cycler, independent time setting ON/OFF. Page 42	 <b>CRM-2HE</b> as CRM-2H, but time setting by external potentiometers (for frequent setting). Page 43
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## Multifunction

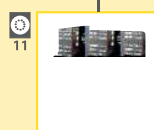
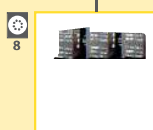
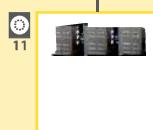

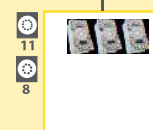
### Analog

 <b>CRM-91H</b> 10 functions, 10 time ranges, 1x output 16A changeover, multivoltage or 230V supply. Page 44-45	 <b>CRM-93H</b> as CRM-91H but output 3x8A changeover. Page 44-45	 <b>CRM-9S</b> as CRM-91H but contactless output (triac 0.7A). Page 44-45	 <b>CRM-61</b> cost effective version of CRM-91H, 6 functions, 6 time ranges. Output 8A changeover, supply AC 24-240V, DC 24V. Page 46	 <b>CRM-91HE</b> as CRM-91H but with time setting by external potentiometer (for frequent setting). Page 43	 <b>Potentiometer</b> potentiometer - external control element for CRM-91HE and CRM-2HE, mounting into a switchboard, max connection length 10m. Page 43
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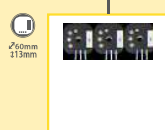

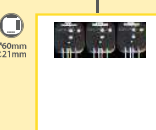
### Digital

 <b>PDR-2A</b> 4 digit display, 16 functions, 2 independent times 0.01s-100hs, 2 outputs 16A changeover STAR/STOP inputs. Page 48-49	 <b>PDR-2B</b> as PDR-2A but 10 functions for each output and time - meaning two relays in one device. Page 48-49	 <b>SHT-1</b> time switch with daily, weekly programming. 1-channel, output 16A changeover. Page 47	 <b>SHT-1/2</b> as SHT-1 but two-channel. Page 47	 <b>SHT-3</b> as SHT-1 but with daily, weekly, monthly, and yearly programming up to 2095. Page 47	 <b>SHT-3/2</b> as SHT-1/2 but with daily, weekly, monthly, and yearly programming up to 2095. Str. 47
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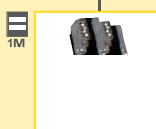
### PLUG-IN

 <b>PRM-91H/11</b> as CRM-91H but into 11-pin socket, multivoltage supply, output contact 16A. Page 50-51	 <b>PRM-91H/8</b> as PRM-91H/11 but into 8-pin socket. Page 50-51	 <b>PRM-92H</b> as PRM-91H but with 2x changeover 8A contacts, into 11-pin socket. Page 50-51	 <b>PRM-2H</b> as CRM-2H but into 11-pin socket. Page 50-51	 <b>socket to DIN rail</b> ES-11 (11 pin) ES-8 (8 pin). Page 50
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### MINI

 <b>SMR-T</b> super multifunction relay for installation into a wiring box, 3-wire connection (without neutral). Page 52-53	 <b>SMR-H</b> as SMR-T but 4-wire connection, output - triac 0-200VA, 9 functions including function of memory relay. Page 52-53	 <b>SMR-B</b> as SMR-H but output relay contact 16A (possibility to switch also fluorescent lights - according to chart page 151). Page 52-53
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## Staircase switch

 <b>CRM-4</b> basic version, time 0.5-10min output contact 16A, anti-blocking function. Page 54	 <b>CRM-42</b> programmable staircase switch with warning before switch-off, time setting by number of button pressings. Page 55	 <b>DIM-2</b> with dimming, setting: dim-up/shining/dim-down brightness only for el. bulbs output up to 500VA. Page 65
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- Separation or reinforcement of outputs of control circuits.
- Protection of contacts of energy tariff switching, switching of boilers, el.bulbs.
- Indication of state by colour LED diode.

#### MODULE

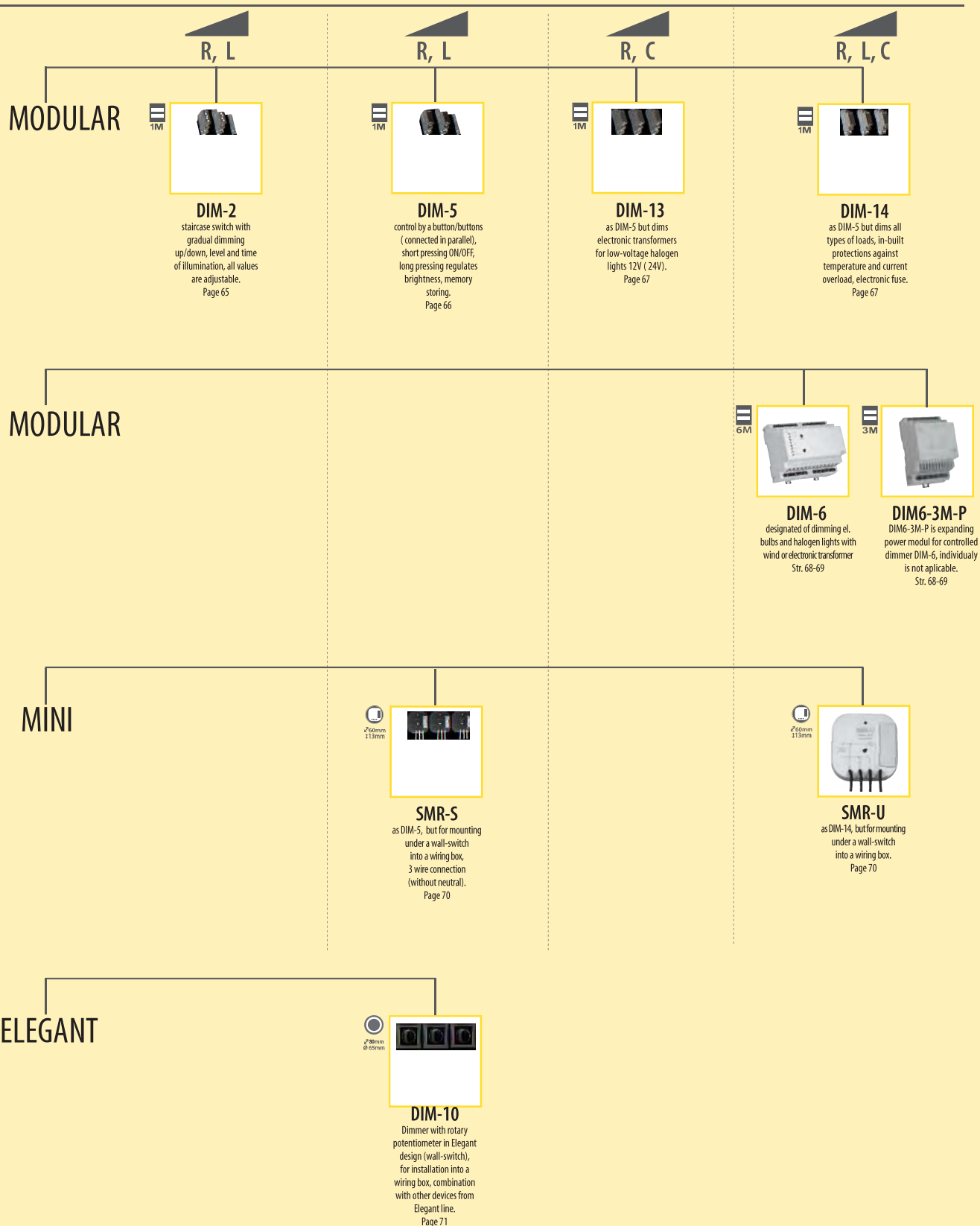
## Auxiliary and Power relays

#### PLUG-IN TYPE

- Industrial relay, long lifetime, fast replacement in operations.
- Mechanical arrest and control LED.



# Dimmers



## Recommendation for mounting:

Recommendation for mounting modular dimmers: leave a gap of min. 0,5 module (approx. 9 mm) on side of the device to ensure better cooling of the device.





- Galvanically separated from the main, electronic fuse.
- Supply of control systems, automats, versions 12-24V.

#### SWITCHING



- Specific voltage setting, regulation by potentiometer.
- Indication of current limit exceeding.
- Protection against short-circuit on output.
- Supply of appliances with Galvanical separation from the main.

#### REGULATED

## Power supplies

#### BELL TRANSFORMER

- Simple power supplies with AC output voltage.
- Supply of door-locks and door-bells.

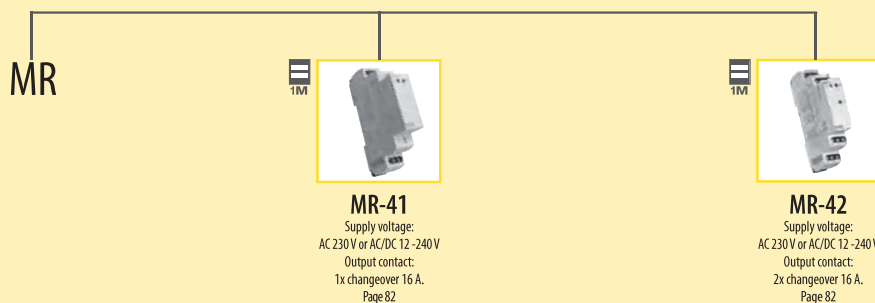


#### NON-STABILIZED

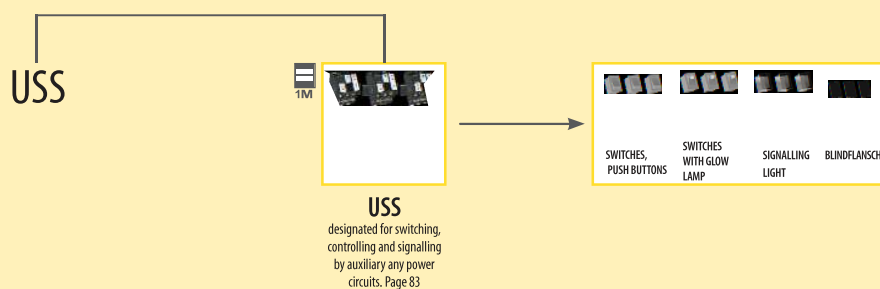
- Fixed output AC or DC voltage.
- Supply of simple devices controllers and home bells.



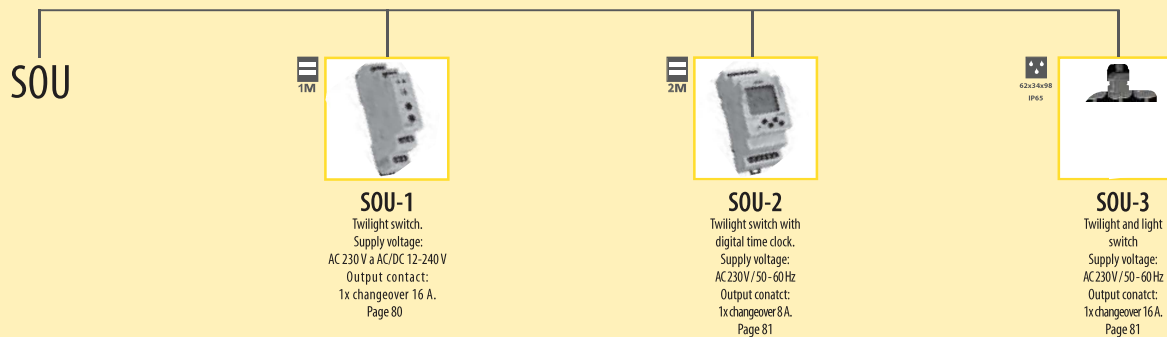
# Memory relays



# Control and signalling devices



# Twilight switches



Accessories  
of twilight switches:





- Control of current flow.
- Monitoring of heating rods on junctions -for control systems, motors or monitoring consumption of one-phase motors.

#### CURRENT



- Protection of appliances and devices against under-voltage/ over-voltage.
- Control of phase sequence and failure in a switchboard.

#### VOLTAGE

## MONITORING RELAY

#### POWER FACTOR

- Control of power factor in 1 and 3-phase mains.
- To monitor unload or overload of motors, pumps, elevator systems and other devices.

#### LEVEL

- monitor levels in wells, basins, reservoirs or pools





## SHR-1-M: brass sensor

## SHR-1-N: stainless steel sensor

sensor to control flooding

electrode with diameter 4 mm is placed in plastic cover with 12 mm screw with nut panel or to holder mounting

conductor is connected to terminal board, shrink bushing for feeder place insulation is a part of device

max. wire profile: 2.5 mm<sup>2</sup>

installation: after connecting a wire to the sensor, run the shrink bushing over the wire onto the sensor. Heat the sensor and by shrinking the connection of sensor and wire will be hermetical

weight: 9.7 g

operating temperature: - 25...+60 °C

total sensor length: 65.5 mm

## SHR-2

detection sensor is electrode, which in connection with switchable device is used for level detection for example in wells, tanks,...

to be used in electric conductive fluids and mechanically polluted fluids with temperature: +1...+80 °C

stainless steel one-pole electrode reside in PVC cover, intended for tank wall mounting or mounting by socket

to ensure correct function of the sensor, it is necessary to have the electrode without dirt which could disable the connection of the electrode and fluid and thus lead to malfunction

max. wire profile: 2.5 mm<sup>2</sup>, recommended wire ÖLFON FEP 1x1.0 BK

installation:

- conductor wire is connected by fastening of two brass screws to stainless steel electrode
- conductor is caulked by bushing Pg7 with protection degree IP68

weight: 48.6 g

dimensions: max. diameter 21 mm, length 96 mm

## SHR-2 in open state



## SHR-3

stainless probe to be used into demanding industrial environments, designated for screwing into tank wall or cover the probe is installed in horizontal, vertical or in sidelong position on tank side or in tank cover. Installation is done by soldering or by fixing nut. It is necessary to use 24mm screw. It is necessary to use an adequate torque with regards to a seal and operational overpressure in a tank

sensor has connecting wire - length 3 m, which is connected to sensor to scan electrode and sensor bushing

connecting wire is double-wire PVC 2 x 0.75 mm<sup>2</sup>, connection of wires: brown - scan electrode, blue - sensor bushing connection M18x1.5 screw

protection degree IP 67,

sensor weight without cable: 100 g

operating surroundings: place without the danger of detonation, temperature on screw: max. 95 °C,

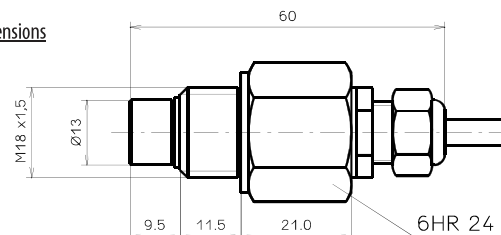
pressure immunity: on 25 °C 4 MPa, on 95 °C 1.5 MPa

weight: 239 g

material: bushing and scan electrode: stainless steel W.Nr. 1.4301, insulation insert of electrode: PTFE,

internal material: self-extinguishing epoxide resin

## Dimensions





- Single thermostats with special temperature range, function or use.

#### ANALOGUE



- Room thermostats in design ELEGANT.
- Monitoring and regulation of temperature in room, floor, or both.

#### THERMO

## THERMOSTATS

#### DIGITAL

- Complex control of heating and water warming in a house; solar heating.
- Maximally universal and variable thermostat with possibility of various functions and combination with time switch.



#### TEV

- Thermostat for demanding environment with protection degree IP65.
- Protection against water-shoot, pavement, drives... freezing.





# ***Installation devices for protection and switching***

CIRCUIT BREAKERS  
RESIDUAL CURRENT DEVICES  
INSTALLATION CONTACTORS





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