North America ELKO ep

Product Overview & Application Examples

Time Relays

Monitoring Relays

Auxiliary Relays

Wi-Fi-Enabled Relays

Power Supplies

Installation Contactors

Signal & Control Modules

c UL us LISTED

UL US

5 YEAR WARRANTY

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Time Relays

CRM-91H

Multifunction time relay

10 functions

time range 0.1s – 10days

1x16A changeover

CRM-181J

Single-function time relay

1 function

time range 0.1s – 100h

1x16A changeover

CRM-2T

Star / Delta time relay

1 function

time range t1: 0.1s - 100days, t2: 0.1-1s

2x16A changeover

PTRM-216KP

Multifunction time relay

potential-free control input

11 pin octal socket

10 functions

time range 0.05s – 30days

2x16A changeover

CRM-2H

Asymmetric flasher

2 functions

time range 0.1s - 100days

1x16A changeover

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DIN Relay Connectors Explained

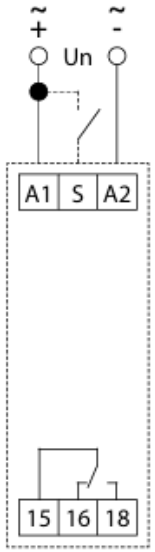
CRM-181J

Single-function time relay

On delay / Off Delay /
Interval On / Flasher

time range 0.1 s – 100 h
1x16A changeover

CRM-181J



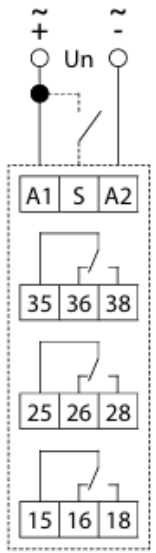
CRM-183J

Single-function time relay

On delay / Off Delay /
Interval On / Flasher

time range 0.1 s – 100 h
3x8A changeover

CRM-183J



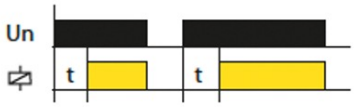
On Delay Function Example

CRM-181J

Single-function time relay

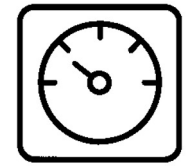
ON DELAY / Off Delay /
Interval On / Flasher

time range 0.1 s – 100 h
1x16A changeover



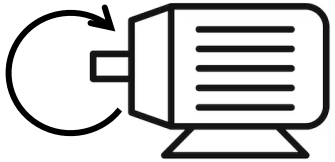
ON DELAY
When the input voltage U is applied, timing delay t begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function.

Delayed motor start



Timer starts

Time expires



Off Delay Function Example

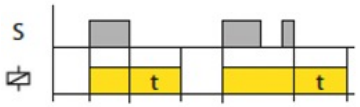
c UL us LISTED E308660

CRM-181J

Single-function time relay

On Delay / **OFF DELAY** /
Interval On / Flasher

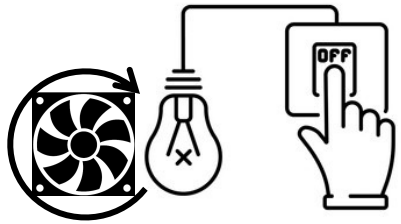
time range 0.1 s – 100 h
1x16A changeover

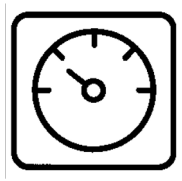


OFF DELAY

Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay t begins. When delay t is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay t is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, relay contacts R return to their shelf state.

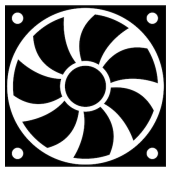
Extended fan operation





Timer starts

Time expires



OFF

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Multifunction Relays

c UL us LISTED E308660

CRM-91H

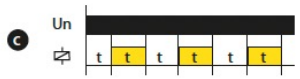
Multifunction time relay
10 functions
time range 0.1s – 10days
1x16A changeover

ON DELAY

When the input voltage U is applied, timing delay t begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function.

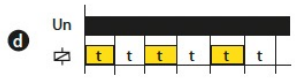
INTERVAL ON

When input voltage U is applied, relay contacts R change state immediately and timing cycle begins. When time delay is complete, contacts return to shelf state. When input voltage U is removed, contacts will also return to their shelfstate. Trigger switch is not used in this function.



FLASHER - OFF first

When input voltage U is applied, time delay t begins. When time delay t is complete, relay contacts R change state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.

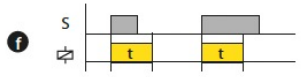


FLASHER - ON first

When input voltage U is applied, relay contacts R change state immediately and time delay t begins. When time delay t is complete, contacts return to their shelf state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.

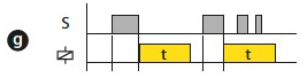
OFF DELAY

Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay t begins. When delay t is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay t is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, relay contacts R return to their shelf state.



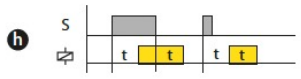
SINGLE SHOT

Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. During time-out, the trigger signal S is ignored. The relay resets by applying the trigger switch S when the relay is not energized.



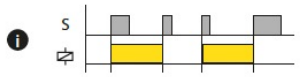
SINGLE SHOT falling edge

Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. At the end of the preset time t, the relay contacts R return to their normal condition unless the trigger switch S is opened and closed prior to time out t (before preset time elapses). Continuous cycling of the trigger switch S at a rate faster than the preset time will cause the relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state.



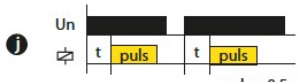
ON/OFF DELAY

Input voltage U must be applied continuously. When trigger switch S is closed, time delay t begins. When time delay t is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.



MEMORY LATCH

Input voltage U must be applied continuously. Output changes state with every trigger switch S closure. If input voltage U is removed, relay contacts R return to their shelf state.



PULSE GENERATOR

Upon application of input voltage U, a single output pulse of 0.5 seconds is delivered to relay after time delay t. Power must be removed and reapplied to repeat pulse. Trigger switch is not used in this function.

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Time Relay Application Examples

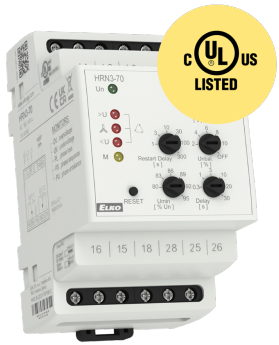
- Flashing light control (time on, time off)
- Engine auto start control
- Furnace safety purge control
- Motor soft-start delay control
- Conveyor belt sequence delay
- Traffic light control
- Garage door and entrance control
- Elevators
- HVAC Systems

Monitoring Relays

Voltage Monitors

HRN3-80

Voltage monitoring relay in 3P
selectable range 208-480V
adjustable time delay 0.3-30s
2 outputs



HRN3-70

Voltage monitoring relay in 3P
selectable range 190-500V
adjustable time delay 0.3-30s
2 outputs

- Detect Voltage in a UPS cabinet to switch from utility power to batteries.
- Detect **overvoltage** in a control panel circuit to disconnect and protects other components.
- Detect **undervoltage** to stop a process and prevent unexpected stop and failure.
- Detects the **correct phase order** to prevent the motor running wrong direction.
- Detect **phase unbalance** to prevent the motor from overheating.

Monitoring Relays

Current Monitors

PRI-51

Current monitoring relay (1P)

ranges 0.1-1/2/5/8/16A AC; adjustable delay
monitoring by built-in transformer (7 ranges)
supply & output like PRI-32, but with direct monitoring and finer ranges
higher sensitivity = better accuracy

PRI-32

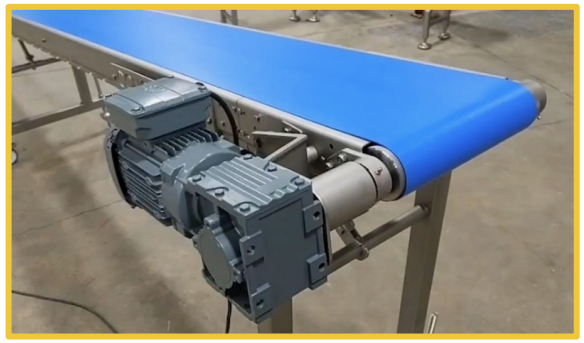
Current monitoring relay (1P)

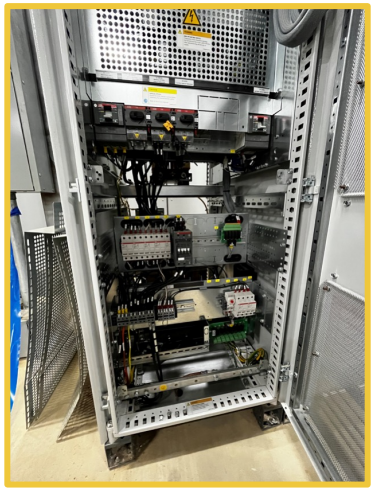
range 1-20A AC
monitoring by current transformer (opening galvanic. separated, no heat loss),
adjust. current 1-20 A
multivoltage AC 24-240 and DC 24 V
output 8 A changeover
current transformer is a part of the product

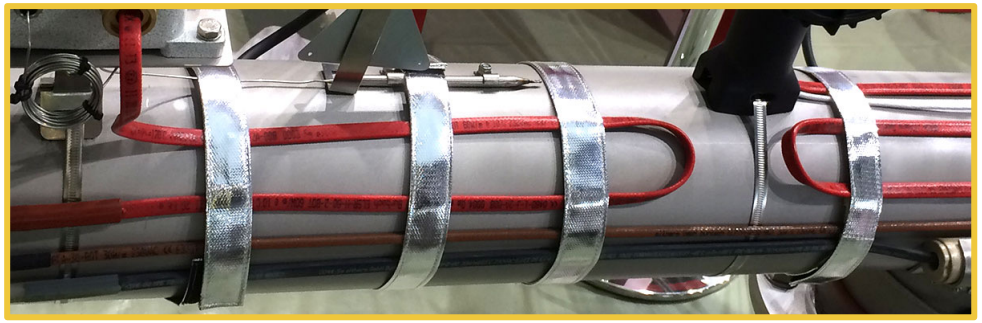
Heating bars in sliding rails, heating cables, indication of current flow controlling of 1-phase motor consumption.

- Detects **current flow** – indicates operation of a heating cable.
- Detect **no current flow** – indicates a failure of a heating cable.
- Detect **overcurrent** – an industrial motor powering a conveyor belt that stalls. This relay can detect it and prevent motor damage.
- Monitors function of a light bulb (sport field, street lighting, mall, office building, elevators, public garage...

Monitoring Relay Application Examples







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Auxiliary Relays

VS116U

Power relay

1x16A changeover,
1-module

VS308U

Power relay

3x8A changeover
1-module

Installation Contactors

VS120

Installation contactor

1x20A NO/NC

VS363

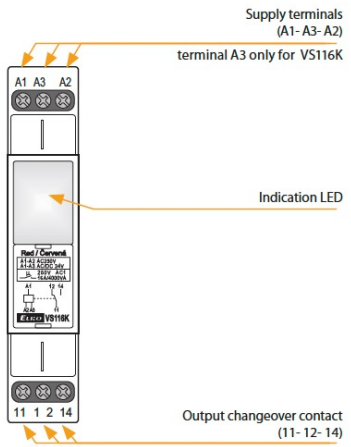
Installation contactor

3x63A NO

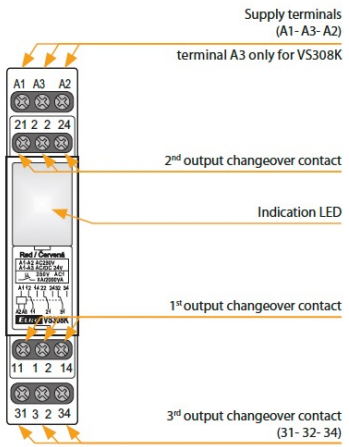
Auxiliary Relays

Universal control voltage
AC/DC 12-240V

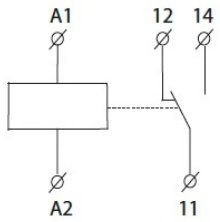
VS116U



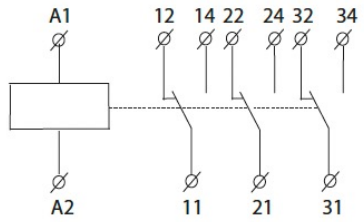
VS308U



VS116U



VS308U



VS116U

Power relay

1x16A changeover,
1-module

VS308U

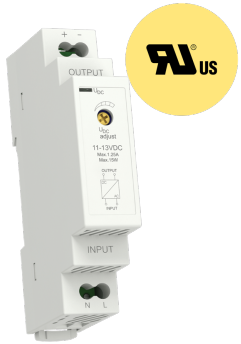
Power relay

3x8A changeover
1-module

Power Supplies

PS3M

Power supply
DC 12V/54W
DC 24V/60W



PS1M

Power supply
DC 12V/15W
DC 24V/15W

PS4M

Power supply
DC 12V/85W
DC 24V/92W

PS2M

Power supply
DC 12V/24W
DC 24V/30W

PS6M

Power supply
DC 12V/135W
DC 24V/150W

Wi-Fi-Enabled Relays

SHT-13

Multifunction digital time switch

SHT-13/1

SHT-13/2

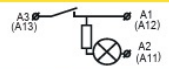
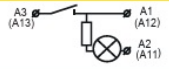
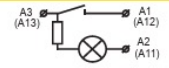
- Multiple programs in one device (daily, weekly, yearly and astronomical)
- UNIversal supply voltage in the range of AC/DC 24 – 240 V (AC 50-60 Hz)
- Simple setting after the first start-up
- User-replaceable battery to back up the set time during power outages
- Built-in web server for setup and control via Wi-Fi connection
- Time synchronization through NTP server (require internet connection)
- Possibility of permanent connection to the local network
- New well-arranged display with white backlight
- ASTROnomic program: manual entry of coordinates or selecting from one of more than 500 preset cities
  - selection of days of the week
  - astro interrupt function (night break): controls the sunrise/sunset times and compares them with the set OFF/ON times
  - high position accuracy thanks to two decimal places in latitude/longitude
- One/two channel design (each with an operating hours counter)
- Pulse/cycle output mode
- Transition of daylight-saving time – AUTO or OFF
- Sealable transparent front panel cover
- PIN code protection against unauthorized changes
- Wireless firmware update – current version 1.46

ELKO ep North America

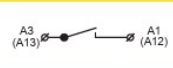
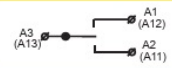
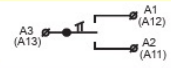
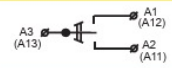
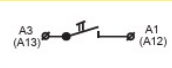
Signal & Control Modules

UL Certification Pending

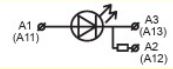
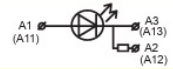
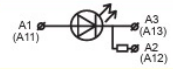
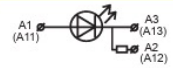
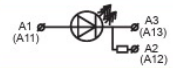
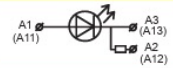
Switches with back-light

USS-07		8595188124713	
USS-08		8595188124720	
USS-09		8595188124706	

Switches, push buttons

USS-01		8595188124621	
USS-02		8595188124638	
USS-03		8595188124645	
USS-04		8595188124652	
USS-05		8595188124669	
USS-06/S		8595188124676	
USS-06/R		8595188136372	

Signaling lights

USS-10		8595188124331	
USS-11		8595188124348	
USS-12		8595188124355	
USS-13		8595188124362	
USS-14		8595188124898	
USS-15		8595188124379	

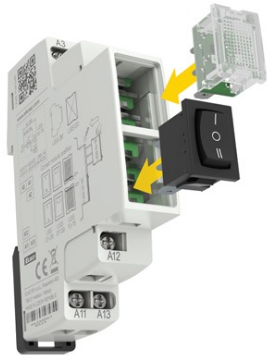
USS-ZM

Base module

1-DIN case with contacts & terminals

- Independent switch units designed for flexible controlling and switching of power circuits
- Houses up to two switches or signal lights

5 YEAR WARRANTY



Examples of mounting

USS-01 + USS-03

USS-07 + USS-11

USS-11 + USS-01

USS-10 + USS-00

USS-10 + USS-11

USS-07 + USS-00

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Monitoring Relays

UL Certification Pending

5 YEAR WARRANTY

HRH-XX

Level Switches

Multifunction

2-6 level monitoring

5 YEAR WARRANTY

TER-XX

Thermostats / Temp. Monitors

Single/Multilevel

Programmable, Wi-Fi enabled

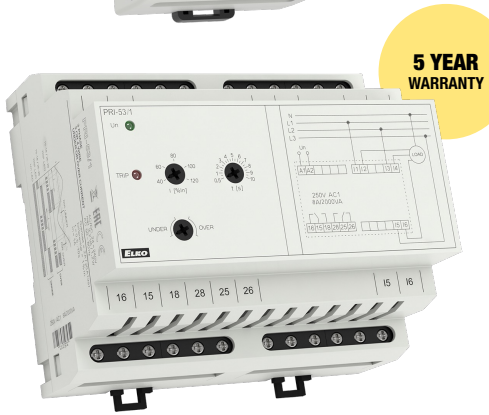
5 YEAR WARRANTY

HRF-XX

Frequency Monitors

Single-phase

40-480 Hz



5 YEAR WARRANTY

PRI-XX

Current Monitors

Single/three-phase

Multifunction

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Wi-Fi-Enabled Relays Application Examples

- **Electrical Panel production**
- Water Treatment and Management Systems
- Carwash lines
- Manufacturing plants
- Logistic centers, warehouses
- Mobile generators

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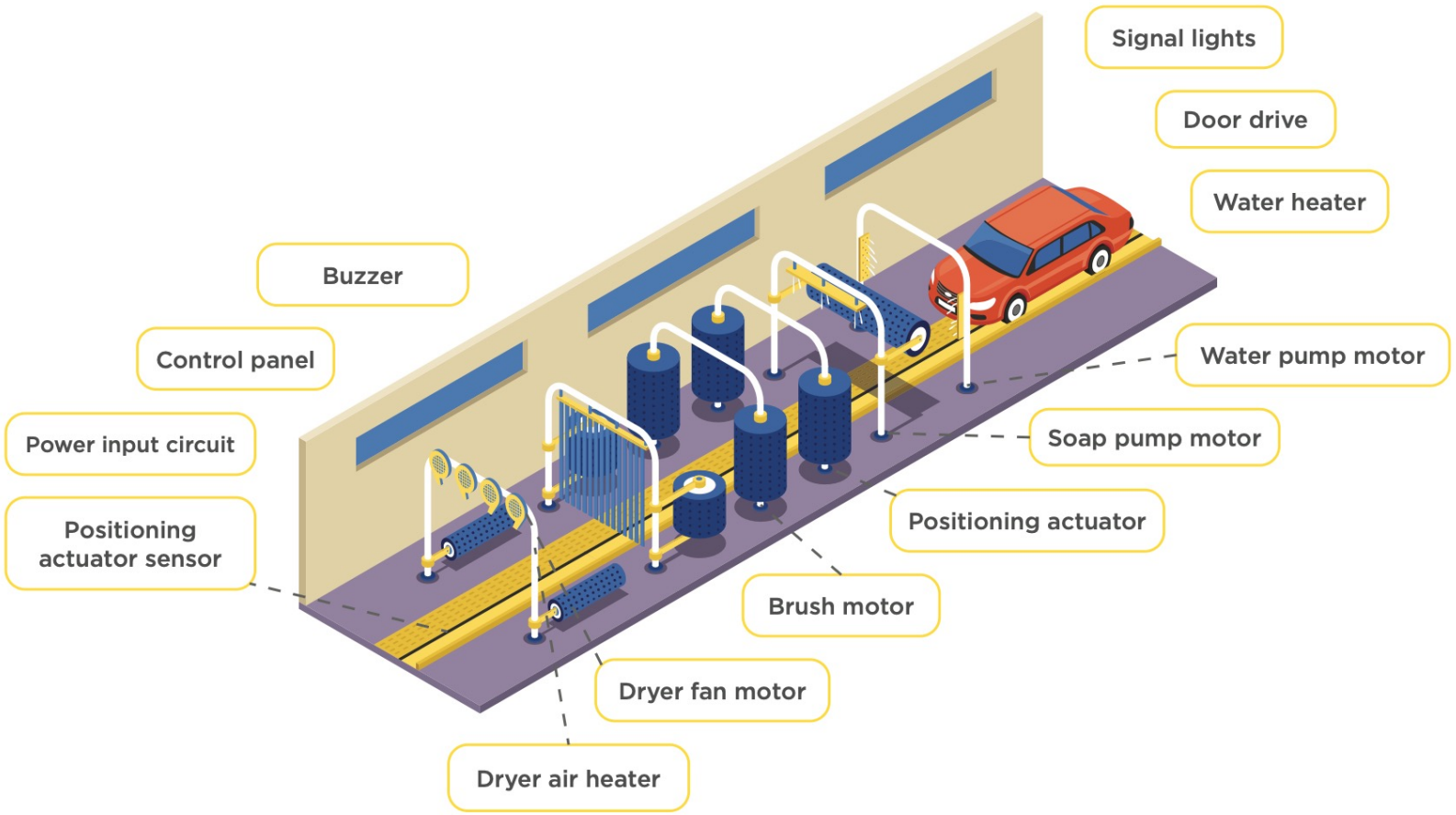
CAR WASHES



Actuator sensor
VS116U
Relay stops actuator drive based on sensor signals.

Brush motor
VS340, CRM-181J, CRM-91H
Relays time brush operation based on sensor signals.

Buzzer
CRM-181J
Relay starts a warning buzzer for a pre-defined time interval.

Control panel, Power input circuit
VS463, HRN3-70
Contactor connects system to utility power, relay monitors voltage.

Door drive
VS220, CRM-181J, CRM-91H
Relays control automatic door motion.

Dryer air heater
VS120, PRI-34,CRM-181J, CRM-91H
Relays control, monitor and protect air heating system.

Dryer fan motor
VS425, CRM-181J, CRM-91H
Relays control, time and monitor fan pump motor.

Positioning actuator
VS120
Relay starts/stops actuator controlled frame/nozzle movements.

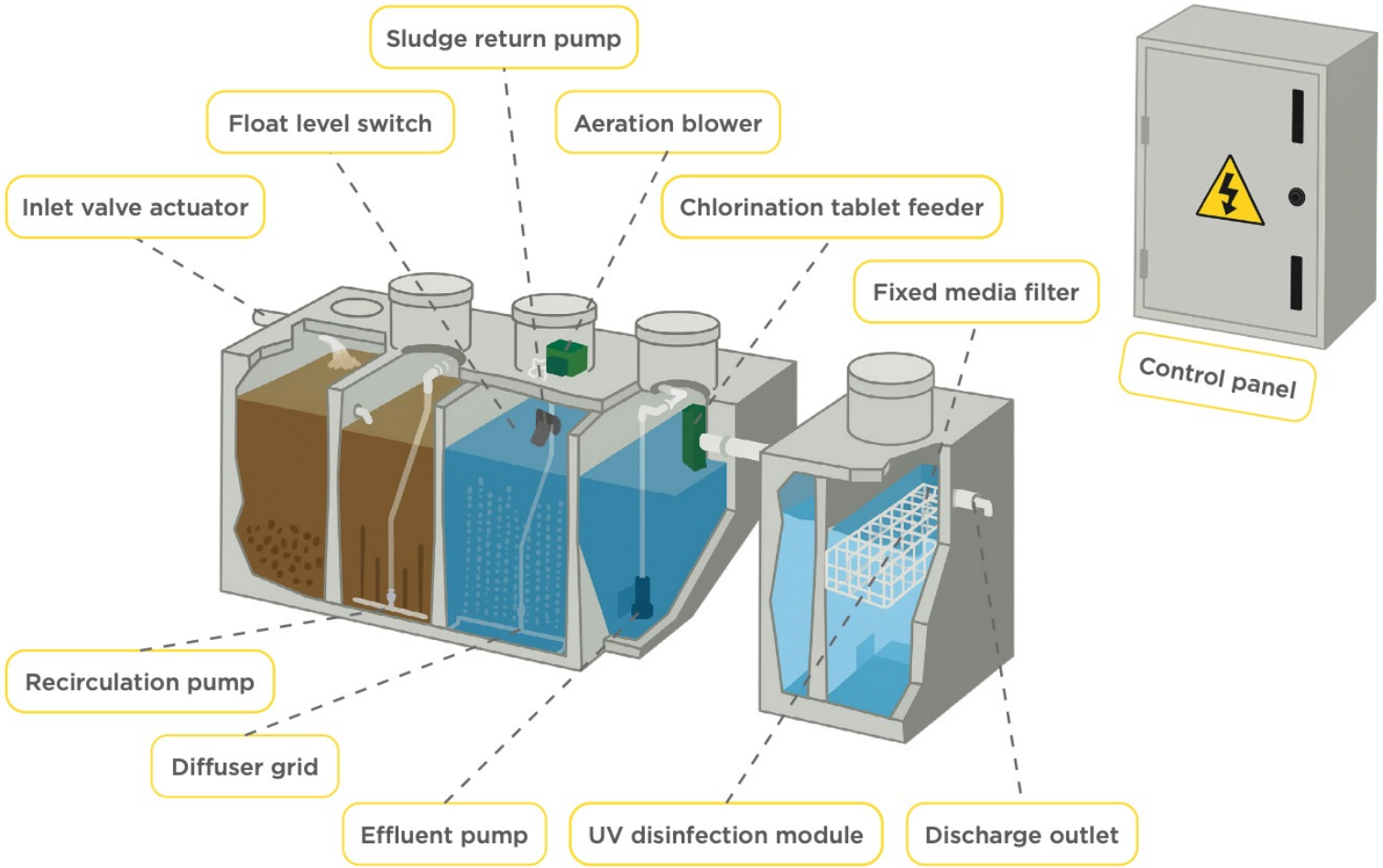
Signal lights
CRM-181J
Relays control and time various signal lights.

Soap pump motor
VS120, CRM-181J, CRM-91H
Relays control, time and monitor soap pump motor.

Water heater
VS120, PRI-34,CRM-181J, CRM-91H
Relays control, monitor and protect water heating system.

Water pump motor
VS425, CRM-181J, CRM-91H
Relays control, time and monitor water pump motor.

WASTEWATER TREATMENT



Aeration blower
CRM-91H, CRM-100H, CRM-113H
Relays cycle blower operation based on timing requirements.

Chlorination tablet feeder
SHT-13, CRM-100H, CRM-113H, CRM-91H
Relays activate chlorine dosing at pre-set intervals.

Control panel
VS463, HRN3-70
Contactor connects power, relay monitors voltage.

Diffuser grid
CRM-113H, CRM-100H, CRM-91H
Relays alternate air pulses for grid oxygenation.

Discharge outlet
CRM-100H, CRM-113H, CRM-91H
Relays release treated water based on tank level.

Effluent pump
CRM-93H, CRM-100H, CRM-113H
Relays control pump discharge based on sensor input.

Fixed media filter
CRM-100H, CRM-91H, CRM-93H
Relays flush media bed or redirect flow when triggered.

Float level switch
HLS-24V, HLS-230V, CRM-100H
Relays respond to float position to signal fill or drain.

Inlet valve actuator
CRM-100H, CRM-91H, CRM-93H
Relays open or close inlet valve according to system logic.

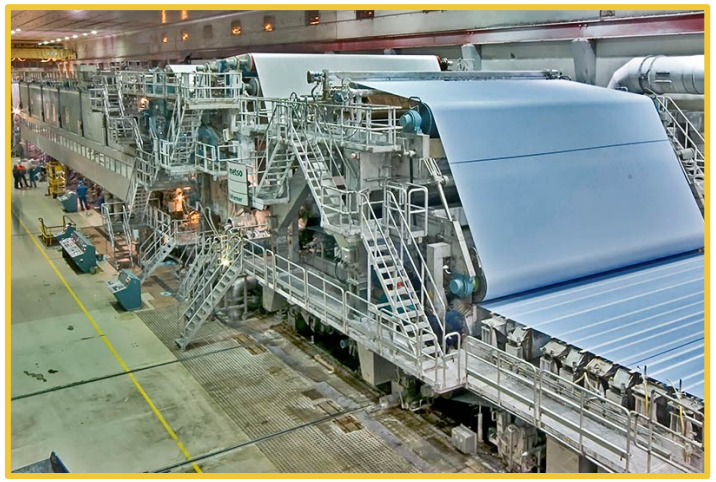
Recirculation pump
CRM-93H, CRM-100H, CRM-113H
Relays manage timed recirculation of water between chambers.

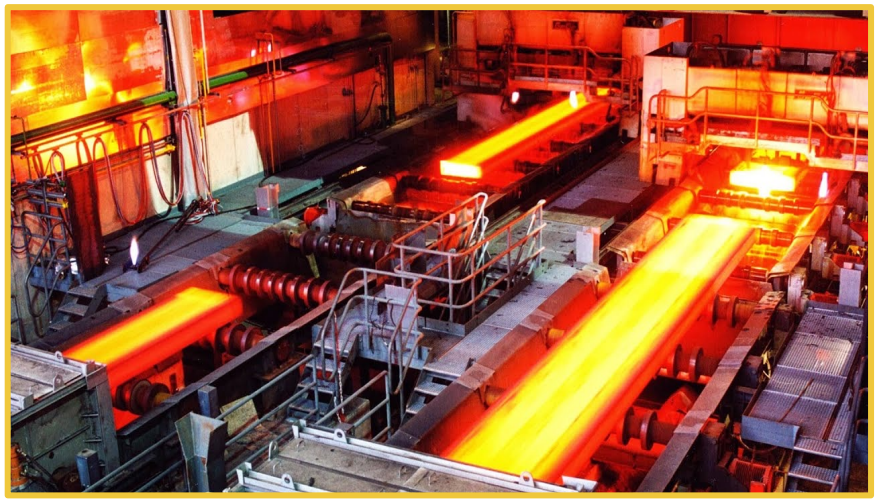
Sludge return pump
CRM-93H, CRM-100H, CRM-91H
Relays activate sludge drawdown based on schedule.

UV disinfection module
CRM-113H, CRM-100H, CRM-93H
Relays power UV lamp during discharge cycles.

More Application Examples

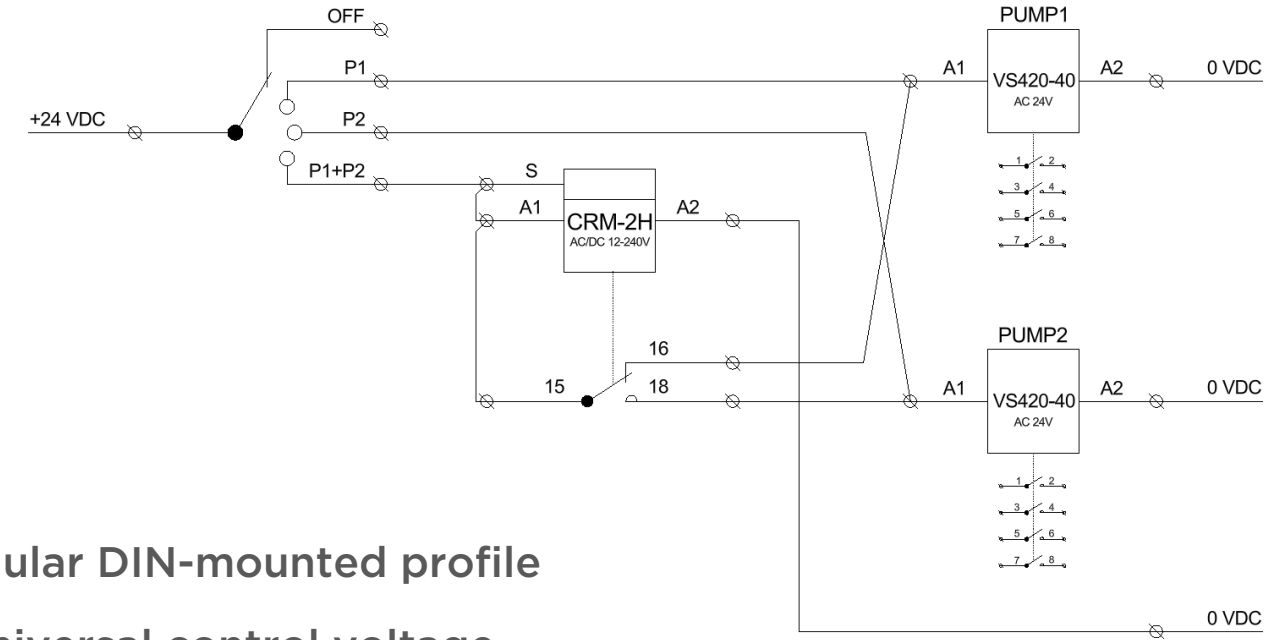
- **Heavy industry**
- Pulp and paper
- Metal mills
- Marine and offshore applications
- Mining sites
- Oil and gas plants and stations, refineries
- LNG terminals, compressor stations
- Pumping stations

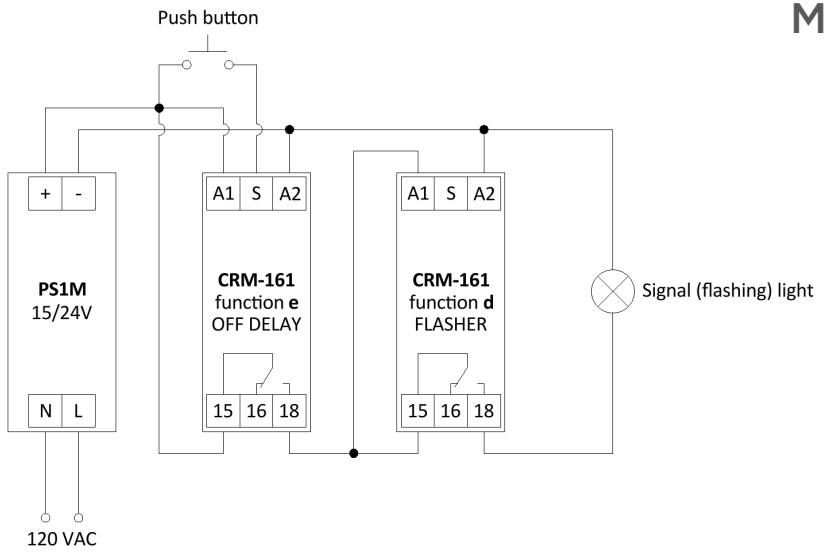




Why Choose ELKO EP North America

- quality, tradition
- reliable, easy to use products
- comprehensive product line
- qualified and responsive technical and product support
- fast lead times
- custom solutions
- assisted engineering





Modular DIN-mounted profile

Universal control voltage
12/24 – 240 VAC/DC

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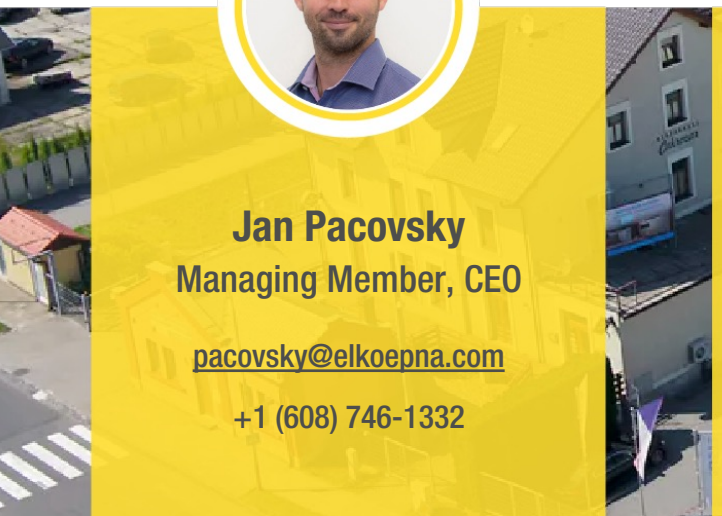

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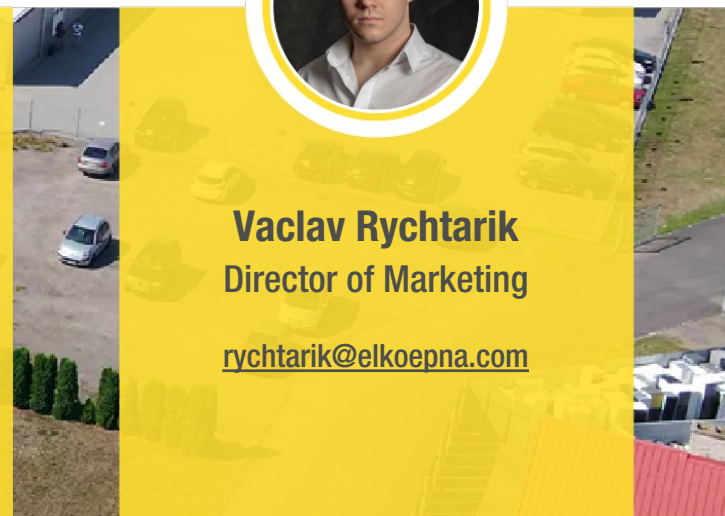

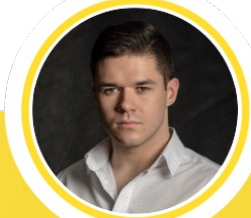

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