

TEMPERATURE TRANSMITTERS

LLK V2 and LUK V2 are transmitters for temperature measuring. LLK V2 is a 2-wire transmitter converting the sensor resistance to the 4...20 mA signal. LUK V2 is a 3-wire transmitter converting the sensor signal to the 0...10 V signal. The transmitter needs a separate Pt1000 sensor.

°C

LLK V2: supply	22...35 Vdc
output	4...20 mA
LUK V2: supply	24 Vac/dc < 1 VA
output	0...10 Vdc < 2mA
ranges	-50...+50, -50...+150, 0...+50, 0...+100 °C
housing	IP54
dimensions	115 x 115 x 45 mm



TYPE	ART NO.	
LLK V2	1182230	2-wire transmitter
LLK-N V2	1182231	2-wire transmitter with display
LUK V2	1182240	3-wire transmitter
LUK-N V2	1182241	3-wire transmitter with display
ML-SER	1139010	transmitter commissioning tool

TEMPERATURE SENSOR SIMULATOR

TESIM sensor simulators are designed for simulating temperature sensor when testing a control system.

ranges	5 selectable temperature values
cable	with banana jacks
accuracy, Pt1000	±0,15°C / 0 °C
accuracy, NTC 10	±0,25°C / 25 °C
housing	IP54



TYPE	ART NO.	
TESIM PT 1000	1170220	Pt1000 simulator
TESIM NTC 10	1170230	NTC 10 simulator

PROTECTIVE CASING FOR ROOM SENSOR

KO IVS is a protective casing for room sensors in spaces like sports halls. Casing is transparent and with a lock.



TYPE	ART NO.	
KO IVS	KO5239	protective casing for room sensors

I/O MODULES

MIO 12 is an I/O module with a Modbus communication, reading four Pt1000 or digital inputs (MIO 12-PT) or four 0...10 V or digital inputs (MIO 12-V). Outputs for thermal actuators or two 3-point actuators and also for four 0...10 V signals are available.

supply	24 Vac/dc
MIO 12-PT: inputs	4 x Pt1000 or 4 x potential free digital input
MIO 12-V: inputs	4 x analogue input or 4 x potential free digital input
outputs	4 x 0...10 Vdc, 2 mA; 4 x 24 Vac 1A, for thermal actuator or two 3-point controller
housing	IP20, for 35 mm DIN rail
dimensions	53 x 90 x 58 mm



TYPE	ART NO.	
MIO 12-PT	1181300	Modbus I/O, 4 analogue inputs (Pt1000) or potential free digital inputs
MIO 12-V	1181310	Modbus I/O, 4 analogue inputs (0...10 V) or potential free digital inputs

TRANSDUCERS

DA 6 converts 1...6 digital (contact) inputs into one analogue 0...10 V or 4...20 mA output. The state of each contact can be identified by the control system software.

supply	24 Vac, 1 VA
inputs	1...6 potential free contact inputs
output 1	0...10 Vdc < 10 mA
output 2	4...20 mA
housing	IP20, for 35 mm DIN rail
dimensions	68 x 90 x 68 mm



TYPE	ART NO.	
DA 6	1182040	DI/AO converter

TRANSDUCERS

ISO 10 provides galvanic isolation between input and output signals and supply. Signal can also be converted, e.g. a 0...10 V signal into a 4...20 mA signal.

signal isolator

supply	24 Vac/dc
input	0...1 V, 0...10 V, 2...10 V, 0...20 mA or 4...20 mA
output	0...10 V, 2...10 V < 2 mA, 0...20 mA or 4...20 mA < 500 Ω
input impedance	at ...10 V range < 250 kΩ (I ≤ 50 uA)
input impedance	at ...20 mA range 100 Ω
isolation voltage	< 500 Vdc
ambient temperature	-20...+50 °C
housing	IP20, for 35 mm DIN rail
dimensions	13 x 111 x 89 mm



TYPE	ART NO.	
ISO 10	1182060	signal isolator

TRANSDUCERS

JY is a switch mode power supply converting a 24 Vac/dc supply into a lower DC voltage supply. Electronic protection for overloading.

24 Vac/dc → 3.6...24 Vdc

supply	24 Vac/dc
output by coding	10 Vdc, 12 Vdc, 16 Vdc, 18 Vdc, 24 Vdc (only with 24 Vac supply), ADJ = adjustable 3.6...24 V
loading	1 A
protection	electronic overload protection
housing	IP20, for 35 mm DIN rail
dimensions	45 x 90 x 58 mm



TYPE

ART NO.

JY 1184020 AC/DC to DC converter

TRANSDUCERS

PMU 3 converts a 0...10 Vdc signal into a 24 Vac 3-point control signal.

0...10 V → 3-point control

supply	24 Vac, 1 VA
input	0...10 Vdc < 1 mA
output	24 Vac < 2 A for a 3-point actuator
actuator running time	adjustable, 15...240 s
housing	IP20, 11-pole relay housing



TYPE

ART NO.

PMU 3 1182120 from 0...10 V to 3-point converter

TRANSDUCERS

UMP 3 converts a 3-point control signal into a 0...10 Vdc signal.

3-point control → 0...10 Vdc

supply	24 Vac, 1 VA
input	10...40 Vac/dc
output	0...10 Vdc, < 1 mA
output change speed	adjustable, 15...240 s
housing	IP20, 11-pole relay housing



TYPE

ART NO.

UMP 3 1182150 from 3-point to 0...10 V converter

TRANSDUCERS

PYR 4 converts one 0...10 Vdc signal into two 0...10 V or 10...0 V signals. Output can be restricted with a set point potentiometer if required.

0...10 Vdc → 2 x 0...10 Vdc
with restriction

supply	24 Vac 2 VA
input	0...10 Vdc
set point	0...100 % (for restriction)
outputs	0...10 Vdc < 10 mA, (direct and inverted)
housing	IP20, 11-pole relay housing



TYPE	ART NO.	
PYR 4	1182130	2-step / limit unit

TRANSDUCERS

AO 2 and AO 3 are signal converters designed for HVAC applications. The converters divide one 0...10 V signal to two (AO 2) or three (AO 3) 0...10 V signals.

0...10 Vdc → 2 x 0...10 Vdc /
3 x 0...10 Vdc

supply	24 Vac/dc, 0.5 VA
input	0...10 Vdc, < 0.2 mA
outputs AO 2	0...10 Vdc, 2 mA
Y1	0...10 V if IN = 0 - 5...13 V
Y2	0...10 V if IN = 5...13 V
outputs AO 3	0...10 Vdc, 2 mA
Y1	0...10 V if IN = 0 - 3.3...13 V
Y2	0...10 V if IN = 3.3 - 6.6...13 V
Y3	0...10 V if IN = 6.6...13 V
housing	IP20, for 35 mm DIN rail
dimensions	23 x 77 x 41 mm



TYPE	ART NO.	
AO 2	1182220	signal divider, 2 outputs
AO 3	1182210	signal divider, 3 outputs

TRANSDUCERS

UV 10 is an amplifier for 0...10 V signals. UV 10 can also be used for controlling fluorescent lamps with electronic transformers.

0...10 V → 0...10 V (10...0 V)

supply	24 Vac/dc < 0.5 VA
input	0(2)...10 Vdc < 0.5 mA
output	0(2)...10 Vdc < 20 mA, or inverted (10...0 Vdc)
housing	IP20, for 35 mm DIN rail
dimensions	23 x 77 x 45 mm



TYPE	ART NO.	
UV 10	1182160	signal amplifier

TRANSFORMERS

M230/24-15 transforms 230 Vac supply to 12/24 Vac supply.

230 Vac → 12/24 Vac, 15 VA

supply	230 Vac, 15 VA
output	24 Vac (15 VA) or 12 Vac (7.5 VA)
housing	IP20, for 35 mm DIN rail
dimensions	35 x 87 x 60 mm



TYPE

ART NO.

M230/24-15 1184090 transformer

TRANSFORMERS

M230/24-30 transforms 230 Vac supply to 12/24 Vac supply.

230 Vac → 12/24 Vac, 30 VA

supply	230 Vac, 30 VA
output	24 Vac (30 VA) or 12 Vac (15 VA)
housing	IP20, for 35 mm DIN rail
dimensions	54 x 87 x 60 mm



TYPE

ART NO.

M230/24-30 1184050 transformer

TRANSFORMERS

M230/12-4 transforms 230 Vac supply to 12 Vdc 4 VA supply.

230 Vac → 12 Vdc, 4 VA

supply	230 Vac, 4 VA
output	12 Vdc 0.25 A
housing	IP20



TYPE

ART NO.

M230/12-4 1184080 power supply

OCCUPANCY SENSORS

LA 14 is an occupancy sensor for controlling ventilation and lighting. Intelligent, processor based, logic prevents false functions being at the same time very sensible. Relay function is quiet and the release delay is adjustable.

supply	24 Vac/dc < 0.5 W
angle	120°
housing	IP20, white plastic
mounting	flush (surface mounting casing optional)
settings:	
function modes	movement detector/occupancy sensor *
relay contact	NC*/NO, < 100 mA, 24 Vac/60 Vdc
delay	selectable 2 s, 2 min, 10 min tai 20 min*
	* Factory settings



TYPE	ART NO.	
LA 14	1185050	occupancy sensor
KO PRA	KO3602	casing for surface mounting

OCCUPANCY SENSORS

LA 15 is designed for controlling lighting. Up to 1.5 A continuous fluorescent lighting load is allowed.

supply	24 Vac/dc
angle	120°
housing	IP20, white plastic
mounting	flush (surface mounting casing optional)
settings:	
function modes	movement detector*/occupancy sensor
signal relay RE1:	
contact	NC*/NO, < 100 mA, 24 Vac/60 Vdc
delay	2 s
lighting relay RE2:	
contact	230 Vac 1,5 A
delay	selectable 2 s, 2 min, 10 min or 20 min*
	* Factory settings



TYPE	ART NO.	
LA 15	1185060	movement / occupancy sensor for switching lighting on/off
LA-RAJ	1185070	180° area guard for occupancy sensor
KO PRA	KO3602	casing for surface mounting

PIR DETECTORS

PLT 24 is a detector for monitoring occupancy through body heat and movements. The passive infrared PIR detector reacts to temperature changes in the range of the detection beams. Mounting bracket and screws are included to the delivery.

supply	24 Vac/dc
alarm output	NC*/NO, < 100 mA, 24 Vac/60 Vdc
function modes	movement detection*/occupancy detection
ambient temperature	-10...+45 °C
housing	IP20
delay	selectable 2 s*, 2 min, 10 min or 20 min
angle	140°, max. 12 m
	* Factory settings



TYPE	ART NO.	
PLT 24	1185040	PIR movement detector
PLT 24-K	1185045	PIR movement detector, ceiling mounting

PIR DETECTORS

PLT 12 is a detector for monitoring occupancy through body heat and movements. The detector is passive infrared (PIR) which reacts to temperature changes in range of the detection beams. Mounting bracket and screws are included to the delivery.

supply	12 Vdc
alarm output	NC, < 500 mA, 24 Vdc
ambient temperature	-10...+40 °C
housing	IP20
angle	140°, max. 12 m



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TYPE	ART NO.	
PLT 12	1185080	PIR movement detector

TIMERS

LAP timers are designed for extending plant operating hours by pushing a button. The selected time is indicated by an indicator light.

supply	24 Vac or 230 Vac, 2 VA
range LAP 1	12, 24, 36, 48 or 60 minutes
range LAP 5	1, 2, 3, 4 or 5 hours
range LAP 10	2, 4, 6, 8 or 10 hours
output	change over contact 230 Vac, 8 A. res.
time measurement accuracy	±10 s/h
housing	IP20
mounting	on a junction box or on the wall surface, surface mounting casing included



TYPE	ART NO.	
LAP 1	1185025	12...60 minutes (max. time can be restricted to 12...36 minutes)
LAP 5	1185020	1...5 hours (max. time can be restricted to 1...3 hours)
LAP 10	1185021	2...10 hours (max. time can be restricted to 2...6 hours)
LAP 5-T	1185026	as LAP 5, but with a fan ON/OFF indication
LAP 10-T	1185028	as LAP 10, but with a fan ON/OFF indication

LOW VOLTAGE PUSH BUTTONS

PJP is a low voltage push button device with 1, 2 or 4 buttons and indicator lights.

push button contact	< 42 Vac, < 60 Vdc, < 0,8 A
indicator lights	green, externally controlled
housing	IP20
mounting	on a junction box, surface mounting casing not included



TYPE	ART NO.	
PJP 1	1185030	1 push button and 1 indicator light
PJP 2	1185031	2 push buttons and 2 indicator lights
PJP 4	1185032	4 push buttons and 4 indicator lights
KO PRA	KO3602	casing for surface mounting

INDICATOR LIGHTS

LEKA 24 is an indicator light device with green and red light.

24 Vac/dc

input	24 Vac/dc, 0,5 VA
output, led 1	red
output, led 2	green
housing	IP20
mounting	on a junction box, surface mounting casing not included



TYPE

ART NO.

LEKA 24	1185090	indicator light
KO PRA	KO3602	casing for surface mounting

RELAYS

RY 1 and AR 1 are relays with a 24 Vac/dc coil voltage. RYVA 16 can be used for lighting control because it withstands a short-term inrush current peak.

coil 24 Vac/dc

input	24 Vac/dc, 0,5 VA
output	230 Vac, 10 A res.
housing	IP20, for 35 mm DIN rail



TYPE

ART NO.

AR 1	1183010	relay with normally open (NO) contact, width 13 mm
RY 1	1183020	relay with change-over contact, width 23 mm
RY 1-K	1183021	relay with change-over contact, socket connection at the output
RYVA 16	1183060	relay for fluorescent lamps, 16 A (inrush current < 80 A, < 2,5 ms)

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RELAYS

RY 1-U and RY 1-U-K are voltage controlled relays with 0...10 V input.

input 0...10 Vdc

supply	24 Vac/dc, 1 VA
input	0...10 Vdc < 0,2 mA
output	change-over contact 230 Vac, 10 A res.
setpoint	adjustable, 0...10 V
hysteresis	adjustable 0.2...1.0 V
housing	IP20, for 35 mm DIN rail
dimensions	23 x 77 x 41 mm



TYPE

ART NO.

RY 1-U	1183040	voltage controlled relay
RY 1-U-K	1183041	voltage controlled relay, socket connection at the output

RELAYS

3-speed relay units for controlling fan coils (fan speed). FCRY 3 is for 0...10 Vdc input, and FCRY 3-R is for 3...7 k Ω input.

for fan coil controls

supply	24 Vac, 1 VA
input (FCRY 3)	0...10 Vdc < 0.2 mA
input (FCRY 3-R)	3...7 k Ω
output contacts	3 x normally open 230 Vac, 10 A res. (interlocked)
set points (FCRY 3)	adjustable, factory settings 2.5 V, 5.0 V and 7.5 V
hysteresis (FCRY 3)	adjustable 0,2...1,0 V
set points (FCRY 3-R)	3 k Ω = RL4; 4 k Ω = off; 5 k Ω = RL1; 6 k Ω = RL2; 7 k Ω = RL3
housing	IP20, for 35 mm DIN rail
dimensions	45 x 90 x 48 mm



TYPE	ART NO.	
FCRY 3	1183070	fan coil relay, input 0...10 Vdc
FCRY 3-R	1183080	fan coil relay, input 3...7 k Ω

VOLTAGE CONTROLLED RELAY

VK 10 is a voltage controlled relay with an adjustable hysteresis.

0...10 V control

supply	24 Vac, 2 VA
range	0...10 Vdc
setting range	0...100 %
hysteresis	0,5...5,0 V
output	change over contact 230 V, 5 A res.
ambient temperature	0...+50 °C
housing	IP20, 11-pole relay housing



TYPE	ART NO.	
VK 10	1130020	voltage controlled relay

RELAYS

TH 5 is a surface mounted driver that can drive several parallel connected thermal actuators.

driver for thermal actuators

supply	24 Vac
input	5...30 Vac/dc, < 10 mA
output	5 x 24Vac, 1 A, total load max. 3 A
housing	IP66, for surface mounting



TYPE	ART NO.	
TH 5	1183090	driver for thermal actuators, 5 outputs

WATER LEAKAGE RELAY

VVK 2 monitors the status of the water leakage sensors connected to the relay. When the sensor becomes wet the resistance decreases and the alarm relay will be activated. Also the sensor circuit is monitored (alarms if $R > 330 \text{ k}\Omega$).

supply	24 Vac/dc, 2 VA
measuring range	10 k Ω / 80...300 k Ω , selectable
output	change-over contact 60 V, 2 A res.
set point	< 10 k Ω or < 80 k Ω
housing	IP20, for 35 mm DIN rail



TYPE	ART NO.	
VVK 2	1187024	water leakage relay

WATER LEAKAGE RELAY

LPH 10 monitors the resistance of the sensors. When the sensor becomes wet, the resistance decreases and the alarm relay is activated.

supply	24 Vac/dc
set point	approx. 10 k Ω
output	change-over contact 60 Vdc, 0.3 A res.
alarm indication	indicator light and buzzer, with reset button
housing	IP20, ABS plastic
dimensions	87 x 86 x 32 mm



TYPE	ART NO.	
LPH 10	1187010	water leakage relay

WATER LEAKAGE SENSORS

VVA and VVN sensors will be used with VVK 2 and LPH 10. The sensors can be installed on the floor and VVN also e.g. on the bottom of the pipe monitoring possible condensation.

sensor resistance	approx. 300 k Ω when dry
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TYPE	ART NO.	
VVA 1	1187020	sensor with connection box
VVA 2	1187021	sensor with 2 m cable
VVA 3	1187026	sensor (25 x 200 mm) with 2 m cable and adhesive tape
VVN 1	1187025	sensor, 1 m sensor band and 2 m cable
VVN 2	1187023	sensor, 2 m sensor band and 2 m cable