

# EKR6.1

EN

**CONTROLLER FOR ELECTRICAL HEATING EKR6.1**

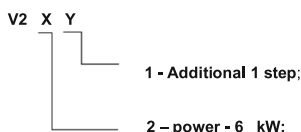
## Description

EKR6.1 is microprocessial, with PID function electrical heating controller, which have automatic voltage adaptation and can be used with built-in or external sensor. EKR6.1 controls the whole load On- Off. The ratio between On-time and Off-time is varied 0-100% to suit the prevailing heat demand. EKR6.1 is only designed for electric heating control. The control principle makes it unsuitable for motor or lighting control. EKR6.1 can not control 3-phase loads, it controls only 1 and 2 phase loads. EKR6.1 has zero phase-angle detection for preventing RFI. EKR6.1 automatically detects connected sensors and select operating mode.

Night function (NIGHT) – setpoint reducing 0..10°C, then timer is connected and its contacts close. Supply air temperatures can be limited (MIN, MAX), then 2 sensors wiring diagram is used.

## Markings

V2 1 1 – (EKR 6.1)



## Technical data

Max. controlled load [kW]	6,4/400V, 3,6/230V
Max. controlled current [A]	18
Voltage [V]	230-415
Frequency [Hz]	50-60
Phases	1~230V, 2~400V
Dimensions (WxHxL) [mm]	150 x 80 x 45
Protection class	IP20
Room temperature [°C]	30 max.
Ambient humidity	90%RH max.
Ambient temperature	0-30°C
Controllers conforms to requirements of these standards: LST EN 61010-1, LST EN 55022:2000, LST EN 60730-1+A11: 2002/A16 2007, marked with conventional sign CE.	

## Connection to supply network

Supply voltage: 230 - 415VAC, 50 - 60 Hz with automatic voltage adaptation.

Not polarity sensitive then 400 VAC power supply is used. Maximum current 16A.

**N.B.** The supply voltage to EKR6-1 should be wired via an all phase breaker with a minimum contact gap of 3mm. Switch and the mains cable must be selected by the power of load. Maximum load -16A. Switch and the mains cable must be located near controller,easy accessible.

**Switch all power OFF before making any terminal available.**

Specification: ⚠ attention, ⚡ controller is protected by double isolation, ~ alternating current.

## Load

Resistive single- or two- phase heater.

Maximum load: 3600W at 230V (18A), or 6400W at 400V (16A). Minimum load: 230W at 230V (1A),or 400W at 400V (1A).

## Temperature sensors wiring

EKR6.1 can be used internal or internal sensors depending on selected wiring diagram. Main wiring diagrams are shown in this instruction. Temperature sensors type NTC10K, temperature range -40..150°C. Connection polarity not sensitive.

Night function (NIGHT) will be turned-on, if TIMER-GND contacts will close.

**1. Wiring with internal sensor. Fig. 1 page 12**

**2. Wiring with supply air temperature sensor.Fig. 2 page 12**

**3. Wiring for extract or room temperature control. Fig. 3 page 12**

## Marking

NIGHT	Setpoint reducing contacts when timer relay (Timer) is connected.
MIN	Supply air temperature minimum setpoint 0..20°C. Active if 2 sensors wiring is used.
MAX	Supply air temperature maximum setpoint 25..60°C. Active if 2 sensors wiring is used.
Tint	Internal temperature sensor.
Tlimit	Supply air temperature sensor NTC-10K (TJK10K).
Texh	Exhaust air temperature sensor NTC-10K (TJK10K).
Timer	Timer for NIGHT function.
HE	Heating element.
F	Automatic circuit breaker, max 18A.

## Installation

EKR6.1 is mounted when front cover is removed. It is with snap lock, unlock through holes on the side of cover. Mount EKR6.1 horizontally. If EKR6.1 is to be used with the internal sensor, mount it approx. 1,5 m above floor level at a location with a representative temperature. Air must be able to circulate freely around an EKR6 without disturbances from doors, furniture etc. If EKR6 is to be used with external sensor it may be placed in any location. Cleaning: Disconnect controller from the mains before cleaning. Clean with humid cloth. Do not use solvents for cleaning the controller.

## Maintenance:

1. Air must be able to circulate freely through vent of controller.
2. Check contacts of voltage and load periodically.

## Troubleshooting

1. Check all wiring.
2. Check power voltage supply.
3. Disconnect sensors Tlimit and Texh. Measure sensors resistance,

## Indication of lights

Indikacija	Išijungimo intervalas	Aprašymas
LED2	1 s.	Tlimit connected
LED2	2 s.	Tint connected
LED2	4 s.	Texh connected
LED2	continuously	Failure (ALARM)
LED1	Interval changing from 0 to 100%	Load control

In case of break or short circuit one of sensors Tlimit, Tinternal, Tset, controller will switch to (ALARM) mode, i.e. after 5 s. heater will be switched-off and LED2 will lit continuously.

To switch off ALARM mode: 1. Shut off power. 2. Eliminate damage causes. 3. Switch on power.

**See. fig.4, page 12**

## Warranty

1. Manufacture declare 2 years warranty term from the date of manufacturers invoice. Warranty is applied in case if all requirements of transporting, storing, installation and electrical connection are fulfilled.
2. In case of damaged or faulty product during warranty term customer must inform producer in 5 days and deliver product to manufacture as soon as possible at customer's costs. In other case warranty is not valid.
3. Manufacture is not responsible for damages which occur during transportation or installation.

**Producer reserve the right to change technical data**

The diagram illustrates a room heating system. At the top, there are two temperature control units: one for 0-30°C (J1) and one for 0-60°C (J2). Below these are two rotary switches labeled 'NIGHT' and 'DAY'. A 'Tint' (timer) unit is also present. The central part of the diagram shows a control panel with a 'Test' button and a 'Tint' button. Below this panel are several terminals labeled 'OND', 'THER', 'THER', 'OND', and 'LIMIT'. The heating system itself consists of a boiler (HEAT), a pump (HE), and a room thermostat (THER). The room is labeled 'Room EKR6.1'.