



JUMO LKR96

Controller for boilers, cooking chambers and baking installations

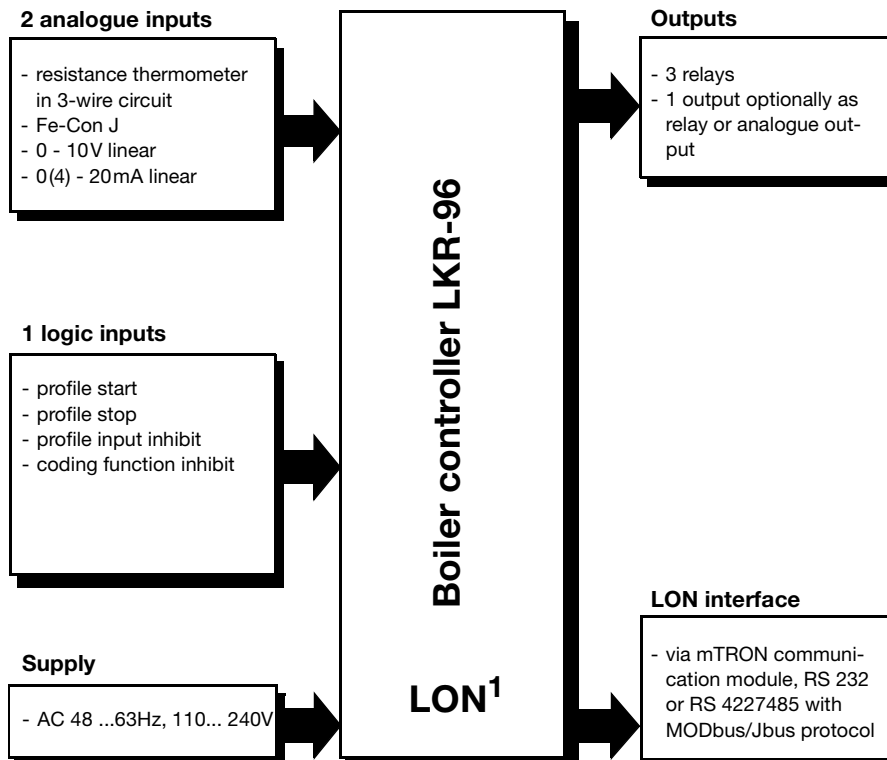
Brief description

The LKR-96 is a 1-channel controller which is available with 1 or 10 process steps. One process step consists of the boiler/core temperature, delta value F-value and running time. Two analogue inputs measure the boiler and core temperature. The integral real-time clock permits the start of a process step via day and time. On instruments of type 70.0201/2 or 70.0201/4, process step 10 can be used to operate an interval spray with adjustable duty cycle (permanently assigned to relay 4). External start and stop conditions or the configuration level inhibit can be set from the logic input through a floating contact. 4 relay outputs are available for controller, limit comparators, operating status and combination alarm. One output can be used as an analogue output (type 70.0201/X-XXX-01-05 ...). The communication module (Data Sheet 70.4040) provides a link to the supervisory level via a Jbus or MODbus protocol. The keys and the LED display of the controller have IP65 protection to DIN 42 115 at the front, are splash-proof and resistant to normal detergents.



Type 700201/...

Block structure



Features

- Compact dimensions 96mm x 96mm
- Easy operation
- Integral real-time clock for starting at any specific time
- Delta cooking and F-value cooking
- 2 limit comparators
- Combination alarm
- Analogue inputs Pt 100 in 3-wire circuit, thermocouple Fe-Con J, 0(4) - 20mA or 0 - 10V
- 1 analogue output
- Logic outputs in the form of relays with 2 n. o. (make) and 2 changeover contacts
- LON interface
- PID single-setpoint or double-setpoint controller
- Display of operating status
- Interval spray
- Protection IP65 at the front

Standard accessories

- 1 Operating Manual B 70.0201
- 2 mounting brackets
- Combicon push-on connectors with screw terminals
- 1 rubber seal for flush panel mounting

1. LON = Local Operating Network.
 Registered trademark of the ECHELON Corporation.

Type designation

Basic type (1) (2) (3) (4) (5) (6) (7)
 7002 01 / . - ... - 01 - .. - 23 - ...

(1) Basic type

| type | Code |
|--------|------|
| LKR-96 | 01 |

(2) Basic type extensions

| Process steps | Code |
|--|------|
| 1 process step | 1 |
| 10 process steps | 2 |
| 1 process step with LON interface FTT10A 78kBaud | 3 |
| 10 process steps with LON interface FTT10A 78kBaud | 4 |

(3) Analogue inputs

| Analogue inputs 1, 2 | Code |
|--|------|
| Pt 100 resistance thermometer in 3-wire circuit | 888 |
| Configuration to customer specification ¹ | 999 |

(4) Logic input

| Floating contact | Code |
|--|------|
| profile program start/stop, inhibit of programming and parameter setting | 01 |

(5) Outputs

| Relays and analogue output | Code |
|--------------------------------|------|
| 3 relays | 03 |
| 4 relays | 04 |
| 3 relays and 1 analogue output | 05 |

(6) Supply

| At rear | Code |
|----------------------------------|------|
| 110 - 240V +10/-15% AC 48 - 63Hz | 23 |

(7) Controller type/limit comparators

| Output/number | Function | Code |
|--|--|------|
| Relay 1 | single-setpoint controller | 888 |
| Relay 2 | combination alarm | |
| Relay 3 | limit comparator 1 (changeover contact) | |
| Configuration to customer specification ¹ | | 999 |
| Relay 4 | limit comparator 2 (changeover contact) | |
| Analogue output | output of boiler/core temperature process values/set-points, controller output or actual F-value as standard signals | |

■ factory setting

1. Check via the settings of the coding functions.

Connection diagram

| Rear view | | | |
|--|---|---|---------|
| | | | |
| Inputs 1,2 | Terminal field 1 | | Diagram |
| Analogue | Input 1 | Input 2 | |
| Resistance thermometer in 3-wire circuit | 1.1 1.2 1.3 | 1.4 1.5 1.6 | |
| Thermocouple | 1.1 + 1.2 - | 1.4 + 1.5 - | |
| Standard signal 0 - 10V 0 - 20mA 4 - 20mA | 1.1 + 1.2 - | 1.4 + 1.5 - | |
| Logic | | | |
| Logic input 1 | 1.7 1.8 | floating contact | |
| Outputs 1 - 4 | Terminal field 2 | | |
| Output 4 (relay or analogue output) | 2.1 n. o. (make) 2.2 common 2.3 n. c. (break) | changeover contact | |
| | 2.2 + 2.3 - | standard signal | |
| | Terminal field 4 | | |
| Output 1 (relay) | 4.1 n. o. (make) 4.2 common | Contact protection circuit: Varistor S14K300 Contact life: 10 ⁶ operations at rated load Rating: 230V 3A (resistive load) | |
| Output 2 (relay) | 4.3 n. o. (make) 4.4 common | | |
| Output 3 (relay) | 4.5 n. o. (make) 4.6 common 4.7 n. c. (break) | | |
| Supply | Terminal field 5 | | |
| 110 - 240V +10/-15% AC 48 - 63 Hz | L1 N PE | line neutral protective earth | |
| LON interface | | | |
| 78kBaud DC | 1.9 1.10 1.11 | twisted, screened cable technical earth | |
| FFT10A 78kBaud | 3.1 3.2 3.3 | technical earth twisted, screened cable | |

Technical Data

| | Resistance thermometer | Thermocouples | Standard signals |
|----------------------------------|---|--|---------------------------------|
| Analogue inputs | | | |
| Signal input | Pt 100 resistance thermometer in 2- or 3-wire circuit -199 to +850°C | Fe-Con J -199 to +1200°C defined range to EN 60 584: -50 to +750°C (Class 1 and 2) | 0 - 10V 0 - 20mA 4 - 20mA |
| Measurement accuracy | 0.05 % | 0.25 % | 0.05 % |
| Temperature drift | 0.025 % max. per 10°C | 0.1 % max. per 10°C | 0.1 % max. per 10°C |
| Class accuracy | 0.1 % | 0.5 % | 0.1 % |
| Resolution | better than 15bit | better than 15bit | better than 15bit |
| Signal circuit monitoring | | | |
| Probe break | recognised | recognised | is recognised at 4 - 20mA |
| Probe short-circuit | recognised | not recognised | is recognised at 4 - 20mA |

Logic input

for connection to a floating contact for profile program start/stop, inhibit of programming and parameter setting

| Outputs | Relay | Analogue output |
|---|---|--|
| Number 1, 2 and 3 | Relay with contact protection Rating 230V 3A resistive load Contact life: 10 ⁶ operations at rated load | - |
| Number 4 (can be set via Cd functions) | | 0 - 20mA 4 - 20mA 0 - 10V 2 - 10V |

Limit comparators

| | |
|------------------------|---|
| Functions | Comparator, window, comparator reversed, window reversed with adjustable limit values (switching edges) |
| Switching differential | adjustable in 0.1°C steps |
| Replacement value | Switching state adjustable on overrange/underrange |

| Controller structures | P | I | PI | PD | PID |
|----------------------------|---|---|----|----|-----|
| Single-setpoint controller | X | X | X | X | X |
| Double-setpoint controller | X | | X | X | X |

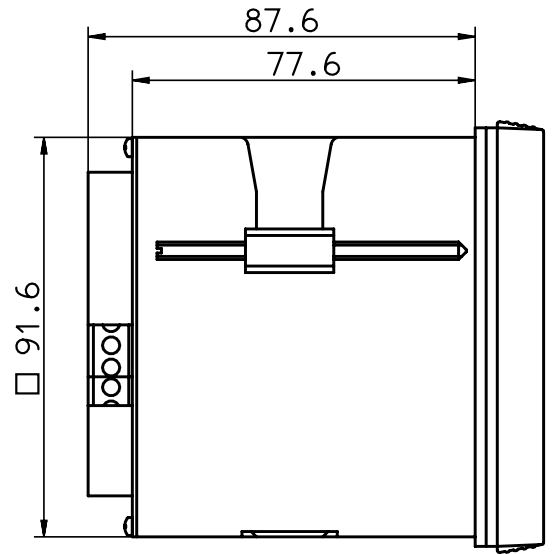
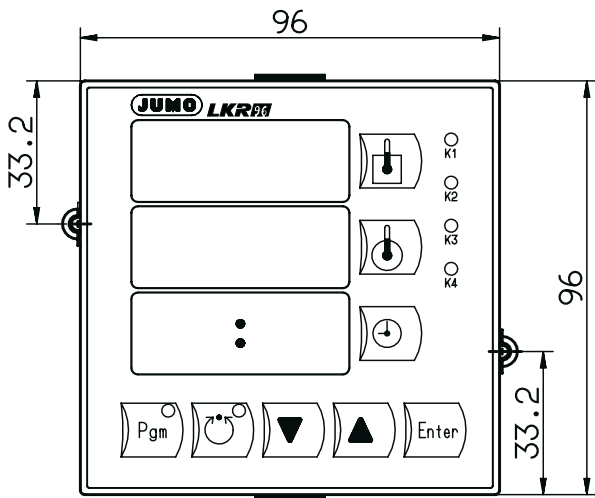
Case

| | |
|--------------------------|--|
| Material | Faradex conductive (ABS) |
| Flammability class | UL 94 V0 self-extinguishing |
| Protection at front/rear | IP65/IP20 to DIN 42 115 Part 2 |
| Membrane keypads | splash-proof, can be washed off with unpressurised water up to 70°C, 24 hour resistance at 50°C to mustard, grape juice, milk, as well as to normal disinfectants, e. g. toilet cleansers and detergents |

Environmental conditions, characteristic electrical data

| | |
|-----------------------------------|--|
| Operating and ambient temperature | 0 - 50°C with air circulation |
| Permitted storage temperature | -40 to +70°C |
| Contamination | Degree 2 to EN 61 010 |
| Overvoltage | Category II to EN 61 010 |
| Relative humidity | not exceeding 80%, no condensation |
| Supply | 110 - 240V +10/-15% AC 48 - 63Hz |
| Power consumption | 10V A max. |
| Response on power failure | Continue, hold, abort can be configured |
| Data buffer | Configuration and parameter data are stored in an EEPROM |
| Weight | 460g |

Dimensions



panel cut-out to DIN 43 700

