



JUMO LKR96

Controller for boilers, cooking chambers and baking installations

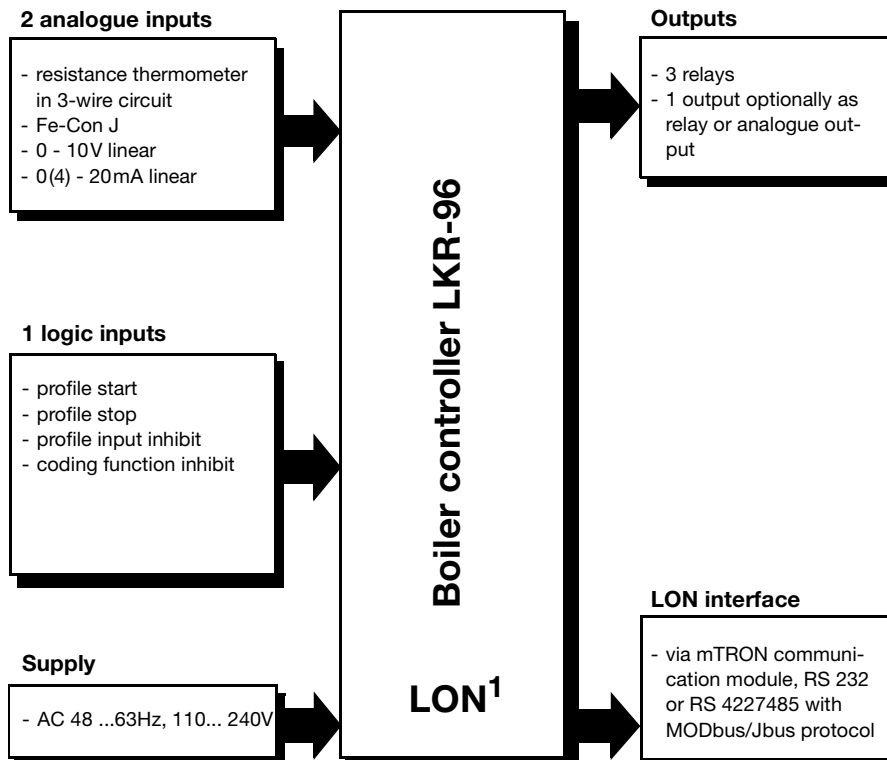
Brief description

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) Ausgänge

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

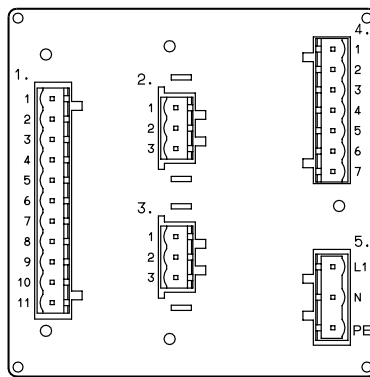
Output/number	Function	Code
Relay 1	single-setpoint controller	888
Relay 2	combination alarm	
Relay 3	limit comparator 1 (changeover contact)	
Configuration to customer specification ¹		999
Relay 4	limit comparator 2 (changeover contact)	
Analogue output	output of boiler/core temperature process values/set-points, 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	1.4		
	1.2	1.5		
	1.3	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

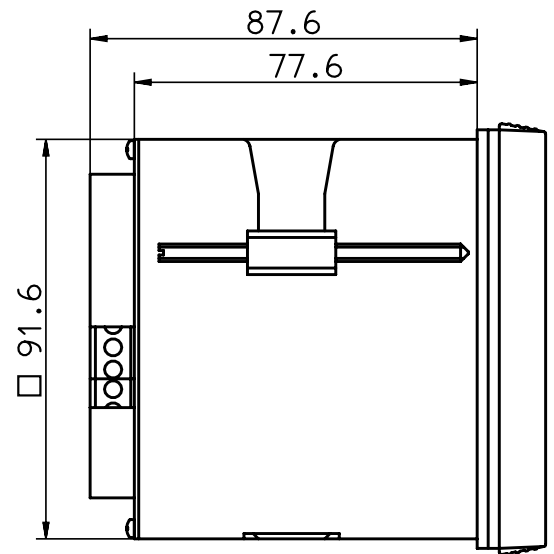
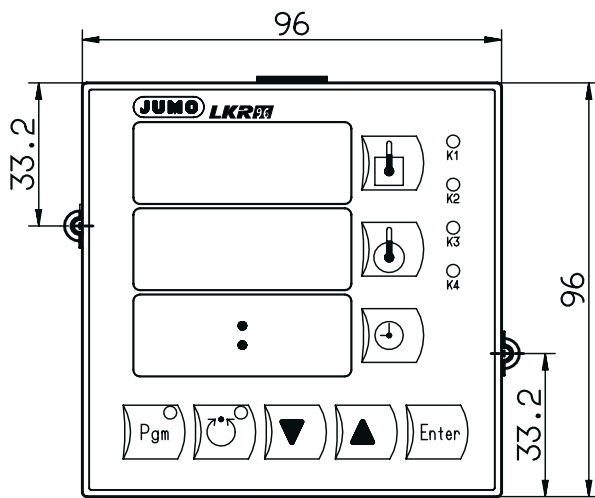
Case

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

