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JUMO iTRON 04 B
Compact Microprocessor Controller

Panel-mounting housing to DIN 43 700

Brief description

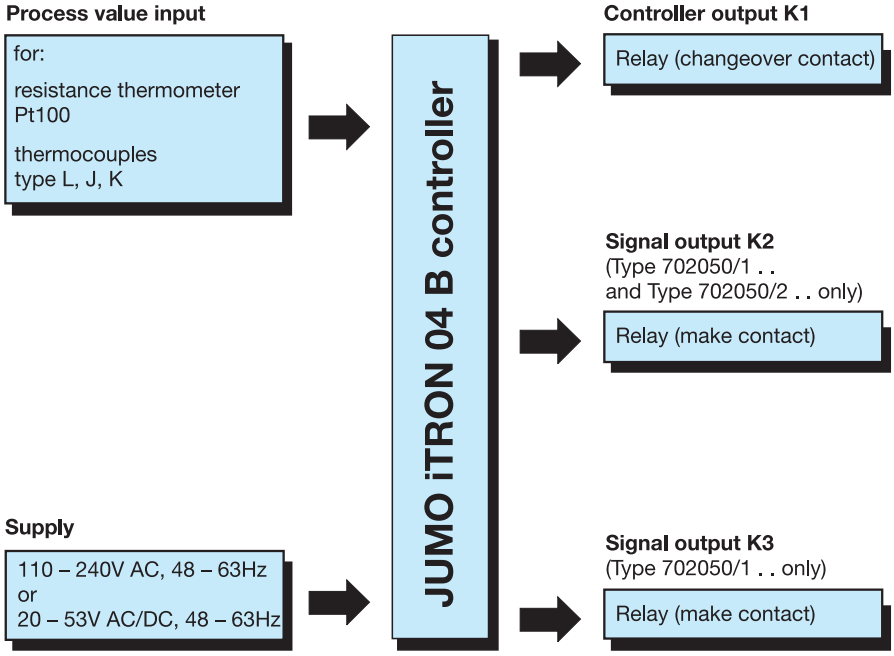
The JUMO iTRON 04 B is a compact, microprocessor-based 2-state controller with 96mm x 96mm bezel size.
Common to all three controller versions is the clearly legible 7-segment display, 20mm high, for indicating the process value and setpoint, or for running dialogs. On the version with setpoint indication, the setpoint is permanently made visible in a separate display. Just two keys are needed for setpoint adjustment and configuration. Parameters are entered dynamically, and the value is accepted automatically after two seconds. The version with a timer features additional displays and controls for the timer function. Two relays have been assigned to the timer function (e.g. process control and program end). A limit comparator is available for the versions with setpoint indication and timer.
Thanks to the membrane keypad, the controller is protected at the front against splashing water and is easy to clean. This makes the instrument particularly suitable for the hygienic requirements of the food industry (for example, time-controlled processes for baking ovens). Individual parameters can be switched out of display on the instrument by means of the distinctly user-friendly setup program.
The electrical connection is made via pluggable screw terminals.
The possible input and output configurations are shown in the block diagram below.

JUMO iTRON 04 B
Type 702050/0.. ...

JUMO iTRON 04 B
Type 702050/1.. ...
with timer

JUMO iTRON 04 B
Type 702050/2 . .
with setpoint indication

Block structure

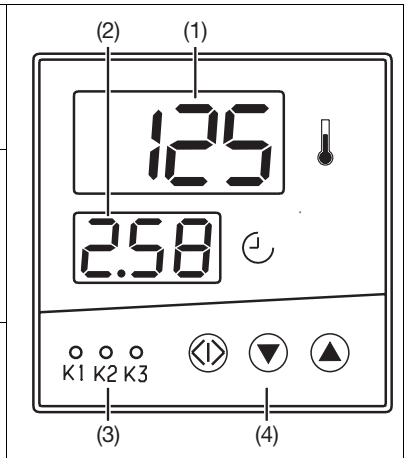


Key features

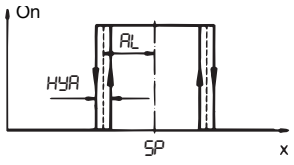
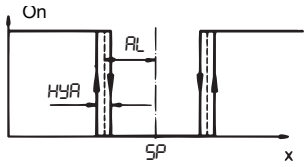
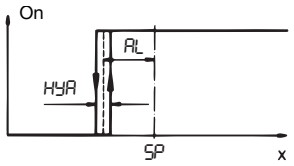
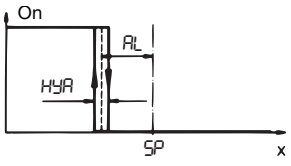
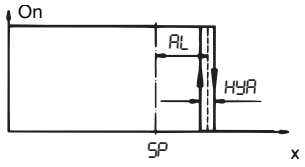
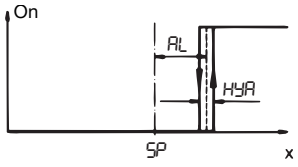
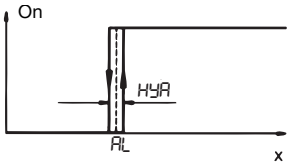
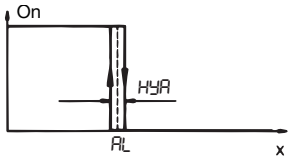
- Simple operation
- Timer function (Type 702050/1 . . only)
- Digital input filter with programmable filter time constant
- Limit comparator (Types 702050/1 . . and 702050/2 . . only)
- Easy-to-clean membrane keypad
- Suitable for ambient temperatures up to 60°C
- Three relays with 5A contact rating at 230V (Type 702050/1 . . only)
- Trilingual setup program (German, English, French)
- UL approval (in preparation)

Displays and controls

(1)	**Upper LED display**	3-digit 7-segment display, 20 mm high, for the process value (temperature); red The setpoint can be indicated here through the setup program, and a key combination can be used to switch between setpoint and process value display.
(2)	**Lower LED display**	3-digit 7-segment display, 14 mm high On Type 702050/1.. : for timer indication; green display format: h.mm (last minute: ss) On Type 702050/2.. : for setpoint; green
(3)	**LED**	controller output K1, yellow signal output K2, green (on Types 702050/1.. and 702050/2.. only) signal output K3, red (Type 702050/1.. only) LED comes on when relay is energized. LED goes out when relay is de-energized.
(4)	**Keys**	timer control (Type 702050/1.. only)
		increase value, select parameter
		decrease value, select parameter



Limit comparator (Type 702050/1 . . and 702050/2 . . only)

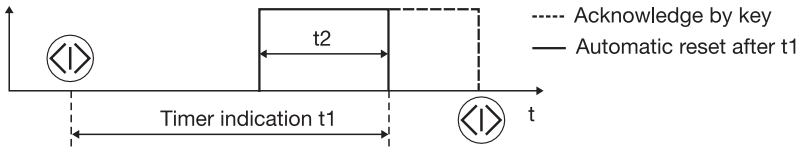
Function lk1 Window function: output is active (On) when the measured value is within a certain range (window) around the setpoint. **Function lk2** as lk1, but inverted signal function.	**lk1** 	**lk2** 
Function lk3 low limit signaling Function: output is inactive when the measured value is below (setpoint - limit value) **Function lk4** as lk3, but inverted signal function.	**lk3** 	**lk4** 
Function lk5 high limit signaling Function: output is inactive when the measured value is above (setpoint + limit value) **Function lk6** as lk5, but inverted signal function.	**lk5** 	**lk6** 
Function lk7 Switching point is independent of the controller setpoint; only AL determines the switching point. Function: output is active when the measured value is above the limit value. **Function lk8** as lk7, but inverted signal function.	**lk7** 	**lk8** 

On Type 702050/2.. with setpoint indication, the signal is output via signal output K2, on Type 702050/1.. with timer via signal output K3.

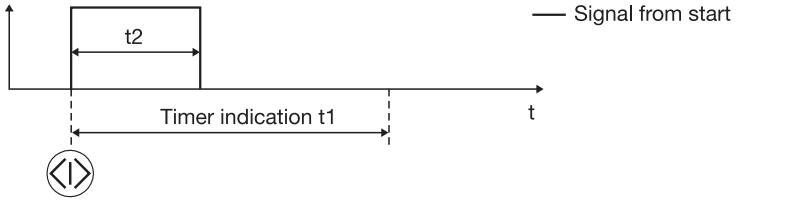
Timer function (Type 702050/1 . . only)

The controller has a timer function that is independent of the control action, with a selectable timer indication t1 ≤ 9 hrs and 59 min. Different signal functions are implemented via two outputs.

Function for signal output K2

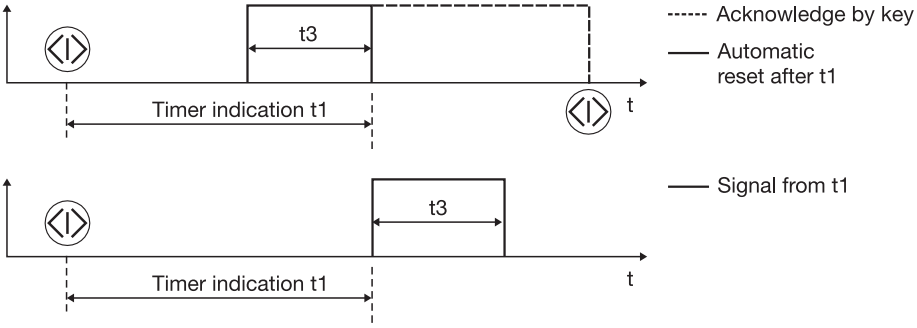


t2 - Timer indication on signal output K2 (1 minute ≤ t2 ≤ 9 hours 59 minutes)



t2 - Timer indication on signal output K2 (1 second ≤ t2 ≤ 9 minutes 59 seconds)

Function for signal output K3



t3 - Timer indication on signal output K3 (1 second ≤ t3 ≤ 9 minutes 59 seconds)

With configured limit comparator, both signals are produced at the output through a logic OR operation.

Technical data

Input for thermocouple

Designation			Range	Meas. accuracy	Ambient temperature error
Fe-Con	L		0 to 725 °C (32 to 999 °F)	≤0.5%	100 ppm/°C
Fe-Con	J	EN 60 584	0 to 725 °C (32 to 999 °F)	≤0.5%	100 ppm/°C
NiCr-Ni	K	EN 60 584	0 to 999 °C (32 to 999 °F)	≤0.5%	100 ppm/°C
Cold junction			Pt100 internal		

Input for resistance thermometer

Designation		Connection circuit	Range	Meas. accuracy	Ambient temperature error
Pt100	EN 60 751	3-wire	-99 to +600 °C -99 to +999 °F	≤0.1%	50 ppm/°C
Sensor lead resistance		max. 20Ω per lead for 2-wire and 3-wire circuit			
Measuring current		250µA			
Lead compensation		Not required for 3-wire circuit. For 2-wire circuit, lead compensation can be provided in the software by process value correction.			

Measuring circuit monitoring[1]

Transducer	Overrange/ underrange	Probe/lead short-circuit[1]	Probe/lead break
Thermocouple	•	-	•
Resistance thermometer	•	•	•

1. In the event of an error, the outputs move to defined states (configurable).

= ex-factory • recognized - not recognized

Outputs

Assignment	Type 702050/0	Type 702050/1	Type 702050/2 . . ...
Output K1	relay (changeover contact) 5A at 250VAC resistive load 250,000 operations at rated load	relay (changeover contact) 5A at 250VAC resistive load 250,000 operations at rated load	relay (changeover contact) 5A at 250VAC resistive load 250,000 operations at rated load
Output K2	not available	relay (make contact) 5A at 250VAC resistive load 100,000 operations at rated load	relay (make contact) 5A at 250VAC resistive load 100,000 operations at rated load
Output K3	not available	relay (make contact) 5A at 250VAC resistive load 100,000 operations at rated load	not available

Controller

Controller type	2-state controller
Controller action	P/PD/PI/PID
A/D converter	resolution >15 bit
Sampling time	210msec

Timer

Accuracy	2.5sec/10h ±50ppm within ambient temperature range

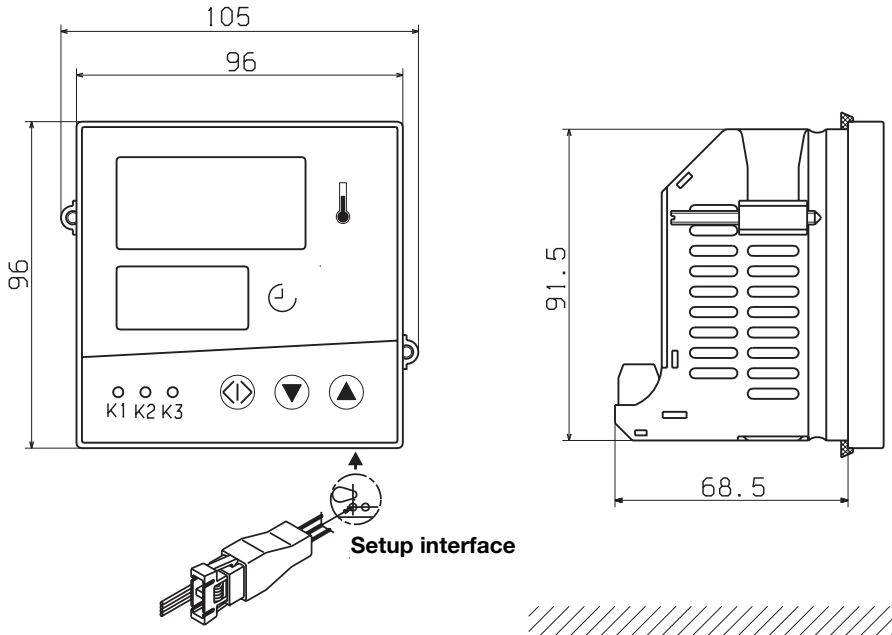
Electrical data

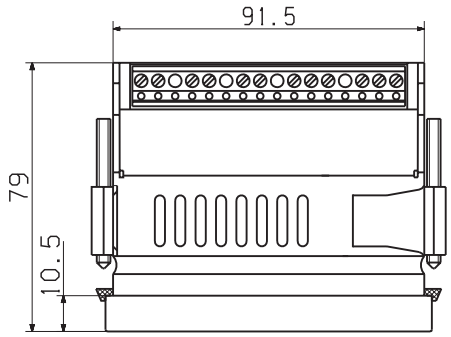
Supply (switch-mode PSU)	110 — 240V AC -15/+10%, 48 — 63Hz or 20 — 53V AC/DC, 48 — 63Hz
Test voltages (type test)	to EN 61 010, Part 1 08.02, overvoltage category III, pollution degree 2
Power consumption	max. 6VA
Data backup	EEPROM
Electrical connection	at the rear by plug-in screw terminals, conductor cross-section ≤ 2.5mm^2 solid wire or 1.5mm^2 stranded wire with ferrules
Electromagnetic compatibility interference emission immunity to interference	EN 61 326 03.02 Class B to industrial requirements
Safety regulation	to EN 61 010-1

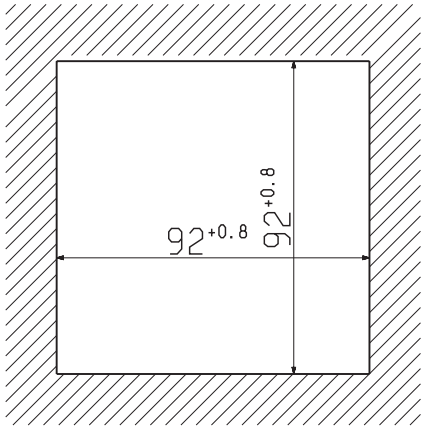
Housing

Housing type	plastic housing for flush-panel mounting to DIN 43 700
Ambient/storage temperature range	-5 to 60°C / -40 to +70°C
Climatic conditions	≤ 90% rel. humidity, no condensation
Operating position	unrestricted
Protection	to EN 60 529, front IP65, rear IP20
Weight	approx. 190g

Dimensions



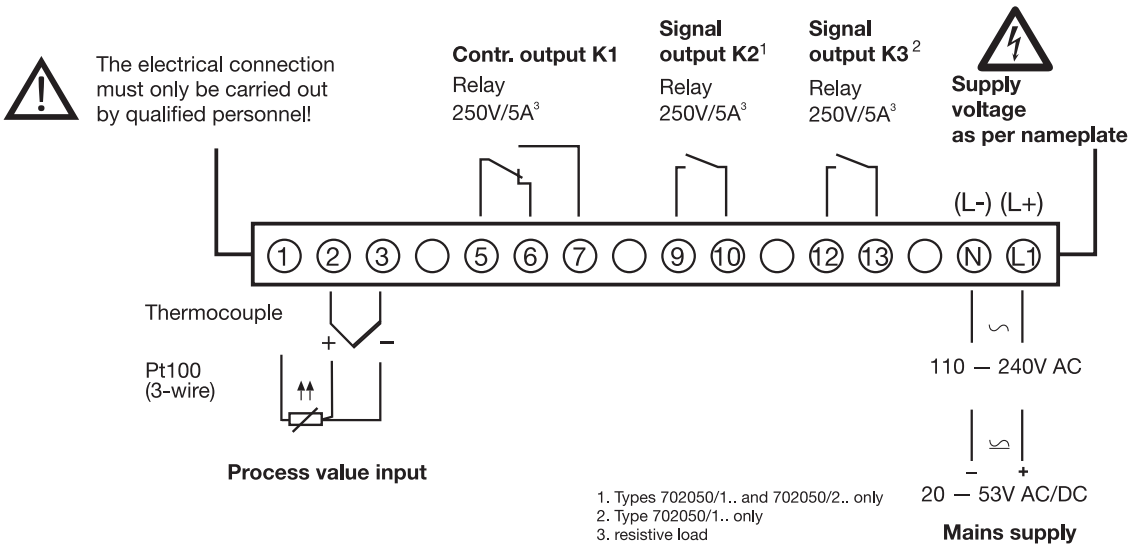




Side-by-side mounting (minimum spacings of the panel cut-outs)

Type	horizontal	vertical
702050	> 14mm	> 14mm

Connection diagram



Order details

				Basic version
			702050/0..	JUMO iTRON 04 B without timer
			702050/1..	JUMO iTRON 04 B with timer
			702050/2..	JUMO iTRON 04 B with setpoint indication
				(1) Basic type extension
x	x	x	.88	factory-set, configurable
x	x	x	.99	configured to customer specification
				(2) Process value input
x	x	x	888	configurable (ex-factory: Pt100)
x	x	x	999	configured to customer specification Pt100 Fe-Con Type J Fe-Con Type L NiCr-Ni Type K
				(3) Outputs
x			311	1 changeover (K1)
		x	341	1 changeover (K1), 1 make (K2)
	x		344	1 changeover (K1), 2 make (K2, K3)
				(4) Supply
x	x	x	22	20 —53V AC/DC, 48 — 63Hz
x	x	x	23	110 — 240V AC +10/-15%, 48 — 63Hz
				(5) Extra codes
x	x	x	000	none
x	x	x	061	UL approval (in preparation)
		1		

		(1)		(2)		(3)		(4)		(5)
Order code	702050 /	. . .	-	. . .	-	. . .	-	. .	/	. . .
Order example	702050 /	088	-	888	-	311	-	23	/	061

= stock items
x = choice is possible for this basic type

Accessories

	Sales No.
Setup program for Windows 98/ME/NT4.0/2000/XP	70/00420495
PC interface for setup program, with adapter	70/00400821

⇨ Operating Instructions B 70.2050.0 ➔ www.jumo.net