

Self-Tuning Universal Controller KS 92-1

Description

The universal controller is suitable for single closed-loop control systems and for automating industrial processes. The equipment is highly flexible and an economical and efficient solution for many industrial applications. The controller is self tuning during start-up and to the setpoint. An optional serial interface RS 422/485 is also available. The configuration and parameterization data are stored in an EEPROM. The user-friendly three-line alphanumeric "day & night" display enables convenient menu-driven operation on site of the controller by entering the configuration and parameter settings in accordance with the existing operating conditions and requirements.

Function

Continuous controller

PID controller

Proportional band X_p : 1 to 9999
Integral time T_i [s]: 0.1 to 9999 s
Derivative time T_d [s]: 0.1 to 9999 s

Switching controller

2 position (on-off) or 3 position stepping controller

The universal controller KS 92-1 is self optimizing, which means that the equipment itself tunes the optimum control parameters to the setpoint.

Design

Controller case in accordance with DIN 43700 for panel mounting and installation in control cabinets.

Wiring via screw-type terminals on back of housing.

For conductor cross-section from 0.5 to 2.5 mm².

Technical Data

Inputs

Controller input 1

Thermocouples

Type	°C range
B	0/1820
C	0/2315
D	0/2315
E	-100/1000
L	-100/900
J	-100/1200
K	-100/1350
N	-100/1300
R	0/1760
S	0/1760
T	-200/400

Internal temperature compensation

Max. additional error: ± 0.5 K

Input impedance: ≥ 1 k Ω

Sensor break detection indicated on display, output of a safety value or detection of control output

Voltage / Current

	Direct voltage	Direct current
Input resistance	110 k Ω	20 Ω
Range	0–10 V	DIN IEC 381 0/4–20 mA

Pt 100

For Pt 100 sensors to DIN 43760 and for three-wire connections

Measuring range: -200 °C up to 850 °C

Measured current: max. 0.2 mA

Display error: ≤ 1 K

Monitoring for break in sensor or short circuit with indication on display, output of a safety value

Lead resistance: max. 30 Ω / lead

Logic input

2 logic inputs via volt-free contacts.

Configurable for the following functions:

interlocking operation, immobilisation of manual button, resetting saved alarms, switching to external setpoint, manual operation

Controller input 2

External setpoint or position feedback

Setpoint

1 internal and 1 external setpoint: mA or V

Function: fixed setpoint controller or fixed setpoint follow-up controller

Front interface

Connection at the front of the equipment via PC adaptor cable (optional). Thanks to the BlueControl software the KS 92-1 can be configured, parameterized, commissioned and operated manually.

Output

Relays

2 volt-free changeover contacts, output 1 and 2, switching capacity: 250 V, 2 A, resistive, 500 VA

Servomotor, output 3 and 4, switching capacity 250 V, 2 A, resistive, 500 VA

Note

When connecting inductive loads, e. g. control contactors, make sure that the contactors are provided with RC suppressor circuits according to the specification of the manufacturers of the contactors in order to prevent high voltage spikes.

Current

0/4 – 20 mA max. load ≤ 500 Ω , output 4

Voltage

0/2 – 10 V configurable, load ≥ 2 k Ω , output 4

Alarm / Limit values

2 volt-free changeover contacts for upper and lower limit (absolute band and deviation alarm) with adjustable hysteresis

Switching capacity: 250 V, 2 A, resistive

Transmitter supply

18 V DC ± 20 %, not insulated

max. current 22 mA, max. load 600 Ω

Display

LED display: alphanumeric, three-lines "day & night" display, showing process values numerically or as a bar graph, with additional elements

Settings

Configuration, parameterization and operation via keyboard, menu-driven.

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Technical Data – continued –

Housing
Panel mounting
Dimensions: 96 x 96 x 120 mm
Weight: 300 g
Protection: IP 65 (front panel)
IP 20 (back)

Wiring
Interfaces: RS 422/485 (optional)
Voltage supply of measuring transducer: 24 V DC
Max. admissible current: 22 mA

Mains voltage
Voltage range: 90 – 260 V AC, 48 – 62 Hz;
24 V AC/DC (optional)
Power consumption: 8 VA
Admissible ambient temperature: 0 °C – 60 °C
Storage temperature: –40 °C to 70 °C
Rel. humidity: ≤ 75 % of annual average, must not be exposed to dew

Important Note
Measuring sensors should always be connected with screened lines. If a pneumatic actuator is to be installed make sure that an I/P transducer is provided.
Ensure interference suppression by providing the loads connected to the relay contacts with suitable RC combinations.

Order & Enquiry Specification

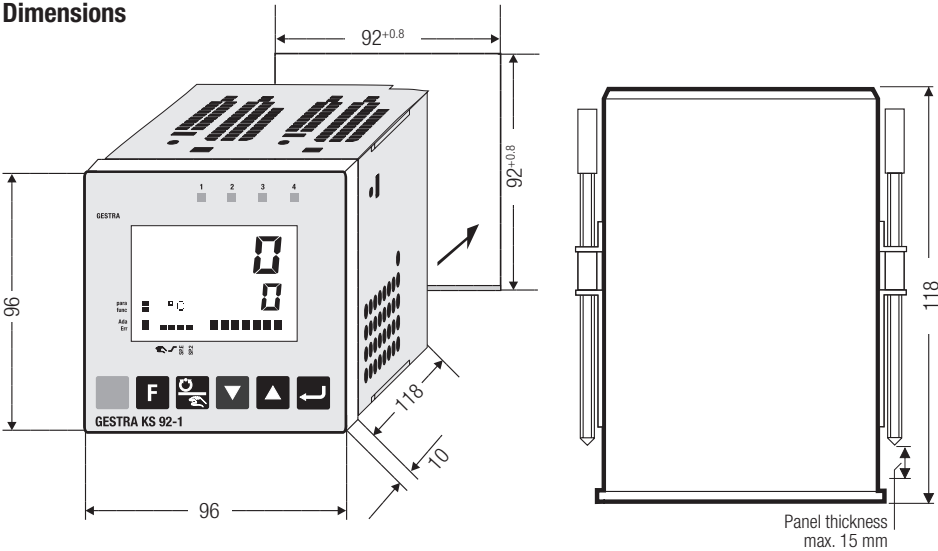
Microprocessor universal controller
Type KS 92-1
With min. and max. limits
Case for panel mounting
Installation dimensions: 96 x 96 x 120 mm
Protection: IP 65, front panel
Measuring inputs:
Pt 100 (three-wire)
Thermocouples (11 types)
External setpoint 0/4 – 20 mA or 0 – 10 V or position feedback
2 logic inputs, digital contacts
1 internal/external setpoint each
Outputs:
Voltage supply of transmitter: 24 V DC
Servomotor (output 3 and 4)
Control output or actual value 0/4 – 20 mA (output 4)
2 isolated optocouplers (output 5, 6)
1 volt free changeover contact (output 3)
Supply voltage: 90 – 260 V AC, 48 – 52 Hz

Ancillary Equipment

- Thermocouples TRG 5-11, TRG 5-41
- Resistance thermometer TRG 5-55 to TRG 5-67
- Pressure transducer DRT, CK/DC
- Level electrode NRG 26-...
- Level transmitter NRT 2-1
- Conductivity transmitter LRT 1-5/LRT 1-6
- Pneumatic and electric control valves series 200, 500, V 725, V 726 and V 727

Supply in accordance with our general terms of business.

Dimensions

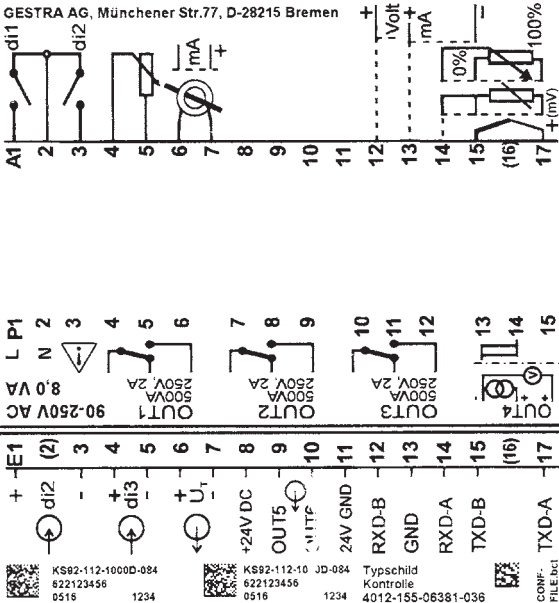


Wiring Diagram

Typ: KS92-112-1000D-084
Ident: 622123456 1234
Vers.: 3.6
Sach-Nr. Date: 0516
392222
GESTRA AG, Münchener Str.77, D-28215 Bremen
KS92-112-1000D-084



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ATEX (Atmosphère Explosible)

According to the European Directive 94/9/EC the equipment must not be used in potentially explosive atmospheres.

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