



DIN rail Controller



CH 3000 SERIES



Technical data

Input:

User configurable for J-K-R -S-B-E-N-T thermocouples , RTD Pt100-Pt1000, linear signals 0/4-20mA, 0/2-10Vdc

Control:

PID + Autotuning (integral and derivate action can be disabled)

Operation:

Automatic/Manual

Main heating output:

1,5A@250Vca SPDT relay , 18Vdc logic (select between logic output and relay through a internal jumper)

Allarm output:

2 allarms with SPST relay output 1,5A@250Vca

Connections:

Screws down terminal clamps

SC Front protection:

IP20

Housing:

UL94 V.2 self-extinguishing polycarbonate, removes from front

Dimension:

Modularity step 22,5mm - depth 114,5mm, width 100mm

Electromagnetic compatibility:

Conforms to CE

Main specifications

The CH3000 has been designed for multiple area control applications. It include the MODBUS / RTU communication protocol and configuration software for PC in windows environment. The CH3000 series has the following principal characteristics:

Universal input for thermocouples, RTD (Pt100- Pt1000), Volt, mA

Selectable OFF-SET for linear input signal

P.I.D. operation with Auto-tuning.

Automatic/manual operation

Initial preheating ramp

Main control output relay or logic

Selectable heating/cooling control

Max/Min set point limitation by user

Selectable max power to load

2 configurable allarms

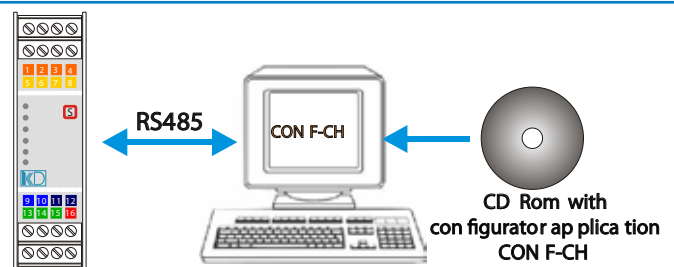
Rs485 opto-isolated serial interface with Modbus-RTU protocol

Digital input opto-isolated for second Set Point and other programmable functions

Power for two-wire transmitter

4-20mA retransmission: selection by software between: Set Point / Process Value / Regulation output

Configuration



CONF-CH SOFTWARE

Main characteristic:

-For O.S. Windows®

-Read/write all device parameters

-Operating configuration device;

-Memory Back-up

-Real time display/acquire mainly process variable for one or multiple devices

- P.V. displayed in Bar-graph modality

-Table saved in Excel format

■ Technical data

INPUTS

IEC 584 Thermocouple

Input time	Range	Resolution	Accuracy @25°C
K	0 ÷ + 1300°C	1°C	+/- 0,25% fs
J	0 ÷ + 900°C	1°C	+/- 0,25% fs
N	0 ÷ + 900°C	1°C	+/- 0,25% fs
T	0 ÷ + 400°C	1°C	+/- 0,25% fs
R	0 ÷ +1760°C	1°C	+/- 0,25% fs
S	0 ÷ +1760°C	1°C	+/- 0,25% fs
B	0 ÷ +1820°C	1°C	+/- 0,25% fs
E	0 ÷ +1000°C	1°C	+/- 0,25% fs

- Cold junction compensation within operating temperature range (0 ÷ 50°C)
- Input impedance > 2 Mohm
- Line resistance < 100 ohm
- Burn out

IEC751 Thermocouple

Input time	Range	Resolution	Accuracy @25°C
Pt 100	-199.9 ÷ +649.0°C	0,1°C	+/-0,2%fs
Pt1000	-199.9 ÷ +649.0°C	0,1°C	+/-0,2%fs

- 2 or 3 wire measurement
- Input resistance > 2 Mohm
- Line resistance < 10 ohm
- Burn out

Temperature influence: <2 microV / °C
Converter linearity error: <0.01%
Optimised thermocouple/RTD element parameter
Interpolation error
Burn out: input crash are detected and signalled

Linear signals

Volt	0/2-10V	+/-0,15%fs
mA	0/4-20mA	+/-0,15%fs

* Software programmable input offset

MAIN HEATING / COOLING OUTPUT

Discontinous on/off to proportional time
Ciclyng 1-100s
Resolution 0.01s
Actuation
SPDT 1,5A@250Vac relay
0-18Vdc +/-20% logic, 45 mA max load

RETRANSMISSION

0/4-20mA max 10V (RLoad<500ohm)
D.A. converter resolution: 10bit
Retransmission selection between:
Output regulation
Process Value
Set Point

Alarms

2 relay alarms
6 settable alarms types
Minimum/maximum actuation function
Independent, absolute or band set point
Programmable hysteresis
Alarms can be disabled on power up
Alarms status display by 2 led
Actuation
- SPST 3A@250 Vac relay

SERIAL INTERFACE

2 wire RS485 opto-isolated 2,5KV
MODBUS-RTU slave protocol 2400,4800, 9600,
19200bps
Maximum devices on network: 247
Read / Write all programming parameters devices
Serial communications active signal via led

SUPPLEMENTARY POWER

Power for a two-wire transmitter
24Vcc max 22mA
Short circuit protection

DIGITAL INPUT

Opto-isolated
Programmable for: switching between two Set Point ,
Auto-Man switching
Potential free contact actuation (eg.relay contact)

SOFTWARE ALARM

Alarm malfunction
System malfunction conditions
Failure sensor
Out of range sensor

MEMORY

The system settings and control parameters and local set point are stored in non-volatile memory (EEPROM)



■ Thechnical data

Control

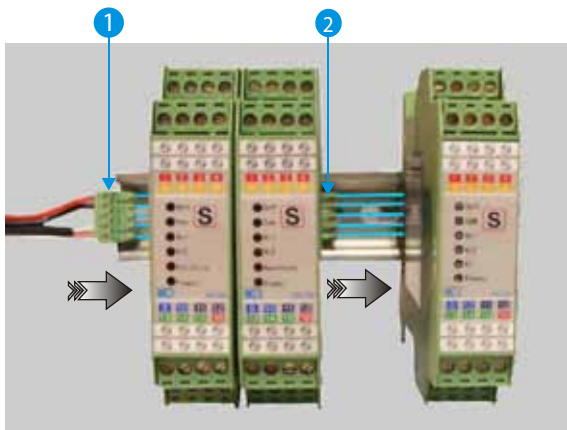
PID parameters	Proportional band	0 ~9999°C (u.i.)
	Integral Time	0 ~ 3600 sec.
	Derivative Time	0 ~ 3600 sec.

PID algorithm with integral action function
 Sampling time optimised for temperature processes (500ms).
 Auto-tuning function
 Selectable heating / cooling control
 Servo valve drive

■ Power

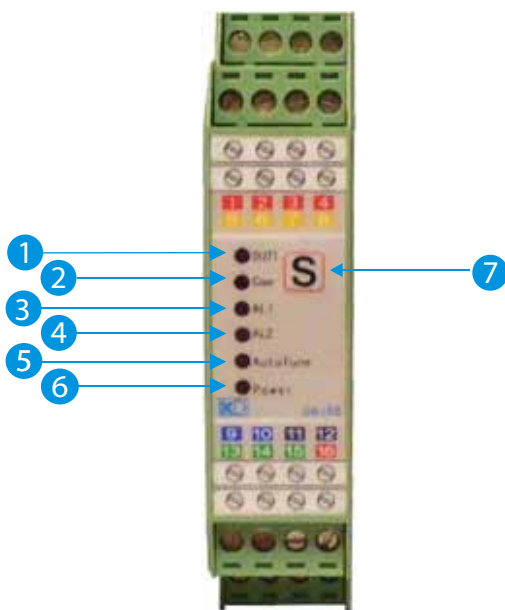
18 ÷ 30 Vcc / Vca 50-60Hz
 Consumption: 4VA

■ Common Power supply



- 1 5-pole male connector, with screw terminals, for power supply and serial communication bus
- 2 Slide connector, build-in, to connect one instrument to another.

OUTLOOK



■ Storage temperature

-40 ÷ 50°C 45 ÷ 85% non-condensing humidity

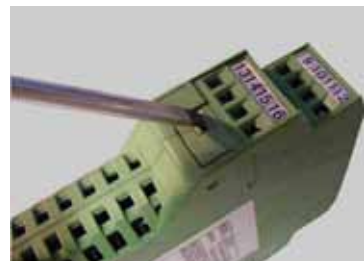
■ Operating temperature

0 ÷ 50°C 45 ÷ 85% non-condensing humidity

■ Switching

The device can operate in automatic (normal condition) and manual mode regulation; in manual mode regulation, the user can define the power quantity to supply at the system.
 The AUTO/MAN switch is made by a modbus command; anyway, it is possible to disable the manual mode status.

■ Withdrawable

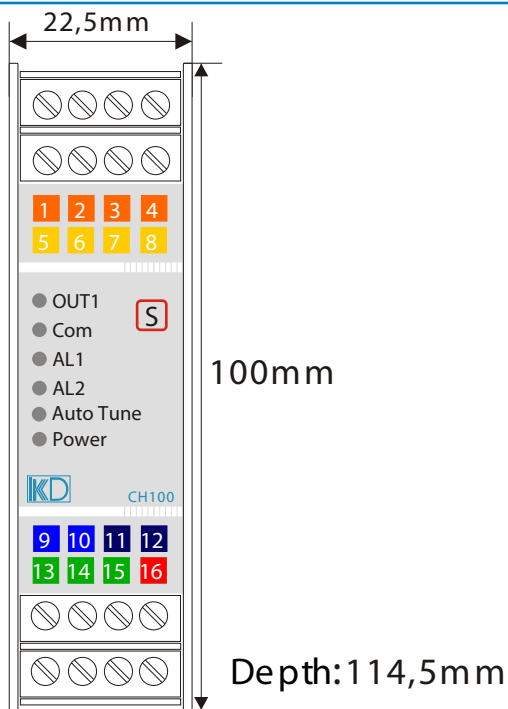


The device it's easy to replace even if powered

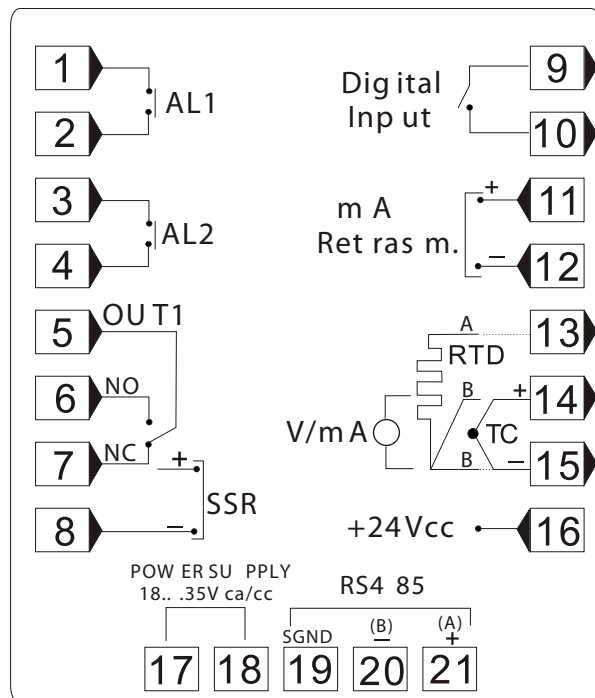
- 1 Regulating output state and malfunctioning alarm led
- 2 Serial communications active led
- 3 Indication state to the Allarm 1 led
- 4 Indication state to the Allarm 2 led
- 5 Indication state Autotuning led
- 6 Power state indication (power supply) led
- 7 Configuration key for serial communication setting parameters



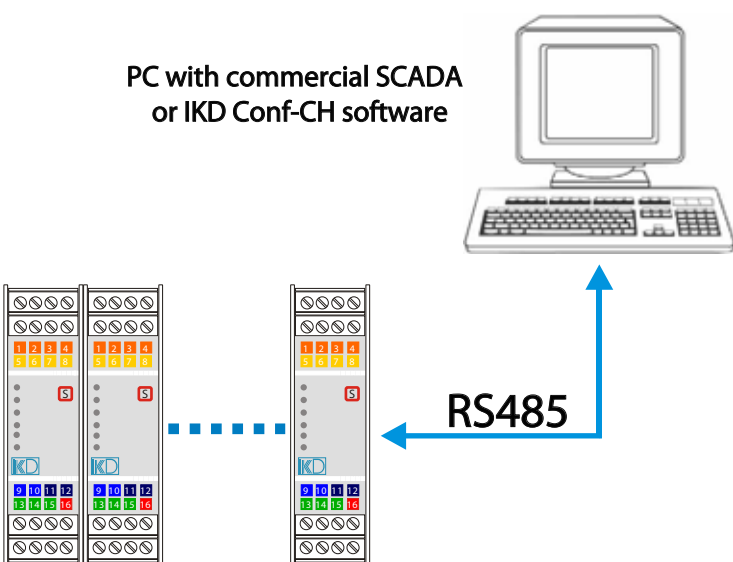
Overall dimensions



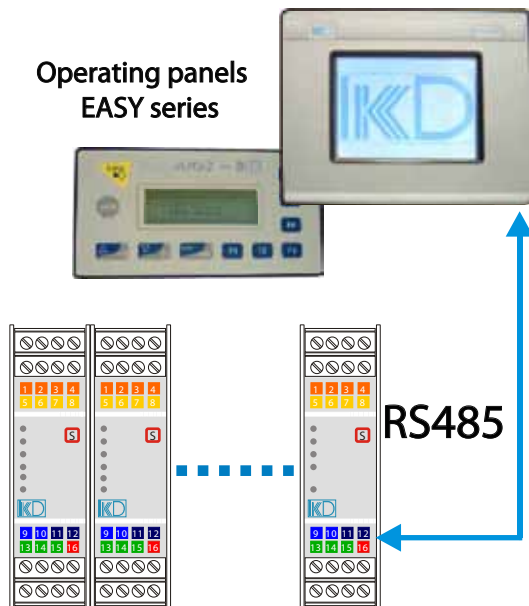
Connection



Acquisition and centralized command



Local command



Order Code Only model CH 3000

DIN rail mounting controller



CH 3000 SERIES

Reseller

