

DOUBLE DISPLAY CONTROLLER

CH SERIES





■ Main specifications

The **CH Series** has the following principal characteristics:

- Independent variable and set point displays
- Universal input for thermocouples, RTD (Pt100-Pt1000) Volt, mA
- RS485 opto-isolated serial interface with Modbus-RTU protocol
- PID control with Auto-tuning
- Automatic/manual operation
- Initial preheating ramp
- Servo valve drive
- Power for two-wire transmitters
- Opto-isolated digital input for second Set Point and other programmable functions
- 8 levels of access to programmable parameters
- Settable OFF-SET for input signal
- Main control output: relay, on/off or continuous Volt/mA
- Selectable heating/cooling control
- Safety max/min set points
- Selectable max power to load
- 2 configurable alarms

■ Parametric configuration/supervision via serial interface and PC (Conf-CH software)



The Conf-CH software enables

- Read/write all device parameters
- Real time display/acquire process variables for one or multiple devices
- Table save in Excel format

■ Technical data

Display

2 4-digit LED displays (green for PV and orange for SV)

Password

8 programmable levels for access to control parameters

Input

User configurable for J-K-R-S-B-E-N-T thermocouples, RTD Pt100-Pt1000, linear signals 0/4-20mA, 0/1-5V DC, 0/2-10V DC

Control

PID + Autotuning

(integral and derived action can be disabled)

Operation

Automatic/Manual

Main heating output

- SPDT relay
- 15V DC logic
- 0/4-20mA / 0/2-10Volt continuous isolated (user selectable Volt/mA)
- Interlocked contact servo valve

Alarms output

2 alarms with SPST relay output

Connections

Screw down terminal clamps

Front protection

IP65

Housing

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

Dimensions

48 x 48 x 100 mm (CH-102), 48 x 96 x 100mm (CH-402)

Panel cut

45 x 45 mm (CH-102), 45 x 92 mm (CH-402)

■ Technical data

INPUTS

IEC 584 Thermocouple

Input type	Range	Resolution	Accuracy @25°C
K	0 ÷ +1372°C	0,1 / 1°C	+/- 0,25% fs
J	0 ÷ +1200°C	0,1 / 1°C	+/- 0,25% fs
N	0 ÷ +1300°C	0,1 / 1°C	+/- 0,25% fs
T	0 ÷ +400°C	0,1 / 1°C	+/- 0,25% fs
R	0 ÷ +1769°C	0,1 / 1°C	+/- 0,25% fs
S	0 ÷ +1769°C	0,1 / 1°C	+/- 0,25% fs
B	0 ÷ +1820°C	0,1 / 1°C	+/- 0,25% fs
E	0 ÷ +1000°C	0,1 / 1°C	+/- 0,25% fs

- Cold junction compensation within operating temperature range
- Input impedance > 2 MΩ
- Line resistance < 100Ω
- Burn out

IEC751 Thermoresistance

Input type	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 and 3 wire measurements
- Input resistance > 1.3 KΩ
- Maximum loop resistance = 10Ω
- 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

Lignar signals

Input type	Range	Resolution	Accuracy @25°C
Volt	0/1-5V 0/2-10V*	± 0,2%fs	1MΩ
mA	0/4-20mA	± 0,2%fs	30Ω

* With supplied external adapter

Software programmable input offset

MAIN HEATING/COOLING OUTPUT

- Cycle time 1-100s
- Resolution 0.01s
- Actuation
 - SPDT 5A@250V AC, 6A@125V AC relay
 - 0-15V DC +/-20% logic, 35 mA max load

Continuous

- Voltage
 - 0 - 10V max 20mA RL> 1Kohm
- Current
 - 0/4 - 20mA max 10V RL<500 ohm
- DA converter resolution: 10 bit

Valve control

- 2 SPST 3A@250 V AC relays

SUPPLEMENTARY POWER

Power for a two-wire transmitter

- 24V DC max 25mA
- Short circuit protection

ALARMS

2 relay alarms

- 6 types of alarms settable
- Minimum/maximum actuation function
- Independent, derived or band set point
- Programmable hysteresis
- Alarms can be disabled on power up
- Alarms status display with 2 leds
- Actuation
 - SPST 3A@250 V AC relay

SERIAL INTERFACE

- RS485 opto-isolated 2.5 Kvolt
- **MODBUS-RTU slave** protocol
- Maximum devices on network: 247
- Read/write all device programming parameters
- Serial communications active signal via led

DIGITAL INPUT

- Opto-isolated 2.5 Kvolt
- Programmable for: Switching between two set points, Auto-man switching, keypad lock
- Potential free contact actuation (e.g. relay contact)

SOFTWARE ALARMS (BLINKER DISPLAY)

Fault alarm

- System malfunction conditions
 - sensor failure
 - sensor out of range

KEYPAD

Scratch resistant polycarbonate, easy to use 4-key keypad.

MEMORY

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

DISPLAY

Simultaneous display of:

- controlled variable (main 4-digit display, H 12mm, green) or control output (manual, secondary 4 digit display, H 10mm, orange)
- or set point (automatic, secondary 4 digit display, H 10mm, Orange)
- led for status of main on/off output
- led for Auto / Tuning activation
- led for actuation of 1st/2nd alarm relay
- led for active serial communications
- decimal point for active ramp



■ Technical data

CONTROL

PID parameter	Proportional band	0 ~ 9999 u.i.
	Integral time	0 ~ 3600 sec.
	Derived time	0 ~ 3600 sec.

- PID algorithm with integral action limitation function
- Sampling time optimised for temperature processes (250 ms)
- Auto-tuning function
- Selectable heating/cooling control
- Servo valve drive

■ Storage temperature

- 40÷60°C 45÷85% non-condensing

■ Operating temperature

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

■ Switching

The device can operate in automatic (normal condition) and manual mode: in the latter mode, the user defines the power delivery to the system.

A key on the front panel makes it easy to switch between AUTO/MAN modes. Switching to manual mode can also be disabled.

■ Power

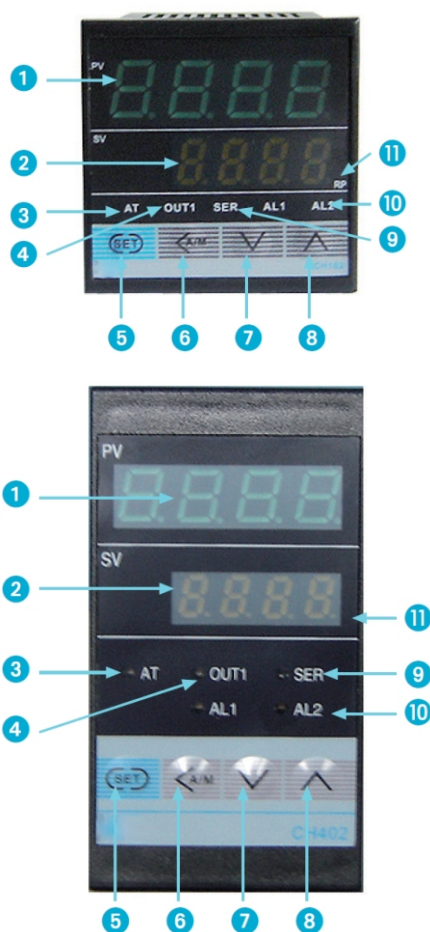
100 ÷ 240V AC 50-60Hz

Consumption: 7W (100 V AC), 10W (240 V AC))

21 ÷ 48 V AC/DC

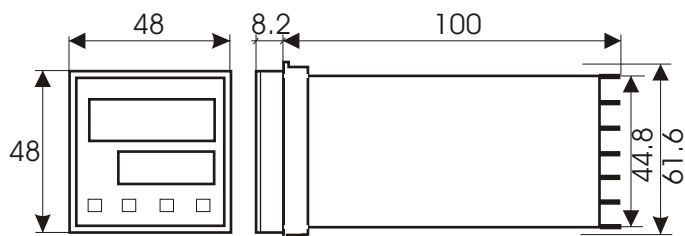
Consumption: 4W (21 V AC/DC), 5W (48 V AC/DC)

OUTLOOK

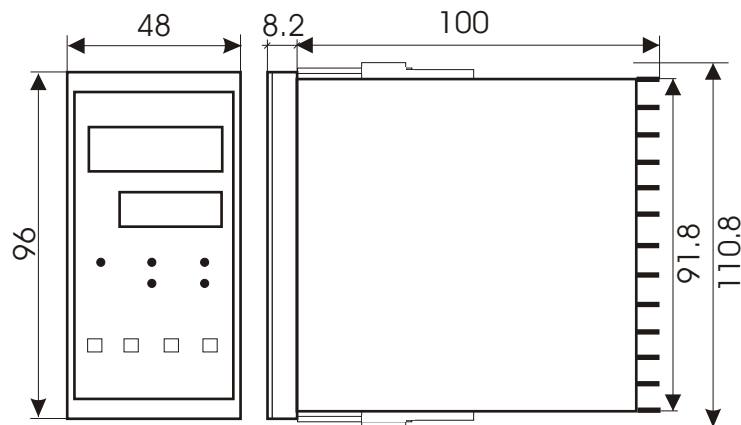


- ① Display to indicate process variable (PV) or programming parameter
- ② Display to indicate Set Point, control output (Man/Auto) or code of parameter to be programmed
- ③ Auto-tuning active warning led
- ④ Control output/valve open relay (servo valve option) warning led
- ⑤ SET key for storing parameters and active input to programming menus
- ⑥ AM key for AUTO/MAN switching or setting digit to be changed
- ⑦ Down key (decrease) for setting device parameters
- ⑧ Up key (increase) for setting device parameters
- ⑨ Serial communications active / valve close relay (servo valve option) warning led
- ⑩ Alarm 1 / Alarm 2, serial communications active (SER) or valve close relay warning led
- ⑪ Active Set Point ramp led

Overall dimensions in mm

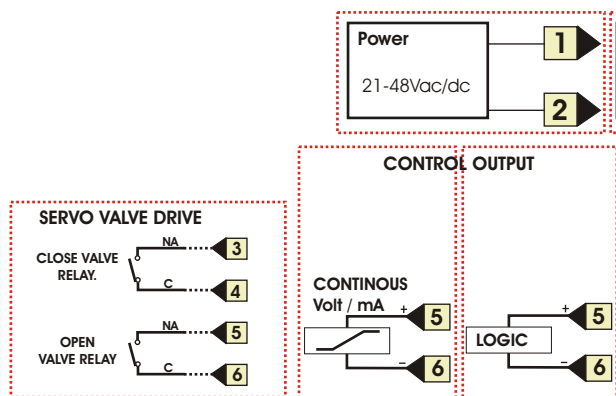


CH-102

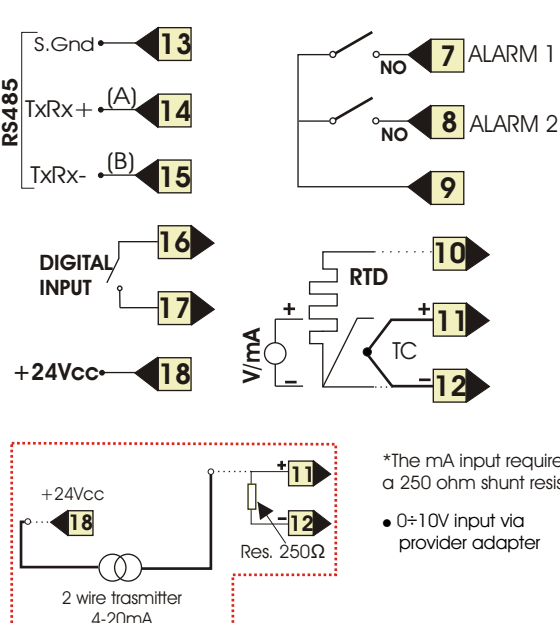


CH-402

Panel cut

 $45^{+0.6}_0 \times 45^{+0.6}_0 \text{ mm}$


Connections

 $45^{+0.6}_0 \times 92^{+0.8}_0 \text{ mm}$


*The mA input requires a 250 ohm shunt resistor
• 0÷10V input via provider adapter

Oder code: SERIE CH#

Power

7 100-240 Vac 50-60HZ
I 21÷48 Vac/dc

Format

N 48x96 (1/8DIN)CH402
Q 48x48 (1/16DIN)CH102

Control output

RA SPDT relay
LA 15Vdc on/off logic
CA 0/2-10Vdc | 0/4-20mA continuos
VA Servo valve drive

Model

S Multiple input, 2 SPST relay alarms, RS485 serial interface, digital input, 24V DC power to transmitter

Options

XX None

Exemple: SERIES CH#7 Q RA S XX
(100-240V AC power,format 48x48, relay control output, multiple input)

DOUBLE DISPLAY CONTROLLER



CH SERIES

Reseller



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