CD401 CD901
CD701 CD501
CD100

INSTRUCTION MANUAL

Warn

- Warning of connection
  If the controller fails to operate or occurs error, the system will bring fault for it, please mount external protective circuit to prevent this accident. To prevent the damage or failure of controller, please select the proper fuse, protective power line, input wire and output wire to avoid impact from high current.
- Power supply
  To prevent the damage or failure of controller, please use the rated power supply.
  To prevent electric shock or failure of controller, please finish all connections first, then switch on.
- No using in the location containing flammable gas
  To proof fire or explosion or protect the controller against damage, never use the controller in the location that contains flammable/explosive gas or steam.
- No contacting the inner of controller
  Never contact the inner of controller, because there are high-voltage and high-temperature parts in the controller, otherwise,some accidents like electric shock or burning would occur. Only our service engineer can check the inner circuit or replace the parts.
  No changing the controller
  To prevent accident or damage of controller, never change the controller.
- Maintenance
  To prevent electric shock, failure or controller, never change the parts randomly, only our service engineer can change the parts
- Please give the regular maintenance for the sake of guaranteeing the durable and safe use of controller. Some parts in the controller may be damaged for long-term service.
- If any technical problem, please contact our service engineer (mobile: 13645844567)

Introduction

LAN-C series intelligent temperature controller adopts special microcomputer multi-function adjusting meter that employs switching power and surface mount technology (SMT)，therefore, the controller is quite smart and reliable. Its special functions like auto diagnosing, auto setting and intelligent control enable operator to get the good efficiency only by simple operation.

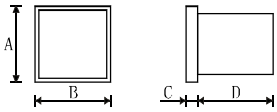
Main technical index

- Input
  Refer to table B for thermocouple (TC)、resistance temperature detector (RTD)、standard current and voltage signals
- Accuracy
  Measurement accuracy: ± 0.5%FS
  Compensation error of cold terminal: ±2℃ (amend within 0~50℃ by software)
  Resolution: 14 Bit
  Sampling period: 0.5 Sec.
- Display
  Process value (PV), setting value (SV): -1999~+9999
  Output, alarm, auto-setting state indicated by: LED
- Control way
  1.PID control (including ON/OFF, on-off position PID and continuous PID)
  2.Auto-setting control
- Control output
  1.Current output: DC 0~10mA, 4~20mA (RL<500Ω)
  2.Voltage output: DC 0~5V, 1~5V (RL>10K)
  3.Relay output: Contact capacity 250VAC 3A (resistive load)
  4.Voltage impulse output: 0~12V (applicable for solid-state relay SSR)
  5.Silicon controlled rectifier (SCR) output: zero-cross triggering or phase-shift trigg cring (resistive load)
  6.Alarming function output: Two groups output at most, 12 modes
  Output contact capacity: 250VAC 3A (resistive load)
- Setting range
  Setting value (SV): same range with PV
  Proportional band (P): 0~full range (ON/OFF control when set to 0)
  Integration time (I): 0~3600Sec (No integral action when set to 0)
  Derivative time (D): 0~3600Sec (No derivative action when set to 0)
  Proportional period: 1~100Sec
  On-off control output hysteresis loop width: 1~100℃ (or other PV units)
- Others
  1.Insulation resistance: > 50MΩ (500VDC)
  2.Insulation strength: 1500VAC/1min
  3.Power consumption: <10VA
  4.Service environment: 0~50℃, 30~85RH, no corrosive gas
  5.Weight: about 0.5Kg (C900)

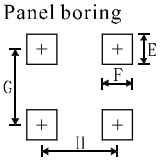
Outline, mounting, boring and connection

- Outline & boring size

Outline size



Panel boring



	A	B	C	D	E	F	G	H
CD101	48	48	10	100	45	45	80	80
CD401	96	48	10	100	92	45	116	80
CD501	48	96	10	100	45	92	80	116
CD701	72	72	10	100	68	68	96	96
CD901	96	96	10	100	92	92	116	116

- Connection diagram (The diagram is subject to the controller itself connection drawing)

Model description and model selection

Model identification

CD □01 — □□□ — □□ * □□

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Outline size (Refer to the last section)

② Control type
F: PID operation and auto calculation (Reverse operation)
D: PID operation and auto calculation (Forward operation)

③ Input type: Refer to input range table

④ Range code: Refer to input range table

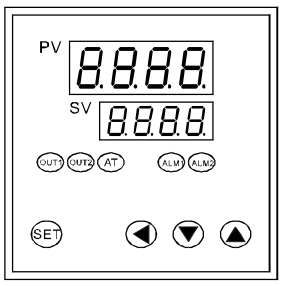
⑤ Control output 1 (OUT 1) (Heating side)
M: Relay contact output 8: Current output (DC 4~20mA)
V: Voltage impulse output G: Thyratron driving & triggering output
T: Thyratron output

⑥ Control output 2 (OUT 2) (Refrigeration side) *2
Null: When control operation is F or D
M: Relay contact output T: Thyratron output
V: Voltage impulse output 8: Current output (DC 4~20mA)

⑦ Alarm 1 (ALM 1) ⑧ Alarm 2 (ALM 2)
N: No set alarm
A: Upper-limit bias alarm
B: Lower-limit bias alarm
C: Upper/lower limit bias alarm
D: Alarm in area
E: Standby upper-limit bias alarm attached
F: Standby lower-limit bias alarm attached
G: Standby upper/lower-limit bias alarm attached
H: Upper-limit input value alarming
J: Lower-limit input value alarming
K: Standby upper-limit input value alarm attached
L: Standby lower -limit input value alarm attached

Note: When placing an order, please fill out the order according to above information.

Panel name and function



NO	Panel description	Description
1.	PV	Measurement value/mode display value
2.	SV	Setting value/mode display value
3.	OUT1	Output 1 indicator lamp
4.	OUT2	Output 2 indicator lamp
5.	AT	PID auto calculation indicator lamp
6.	ALM1	Alarm 1 indicator lamp
7.	ALM2	Alarm 2 Alarm 2 indicator lamp
8.	▲	Up key
9.	▼	Down key
10.	◀	Shift key
11.	SET	Setting mode key

Operation procedures

- Procedures of starting

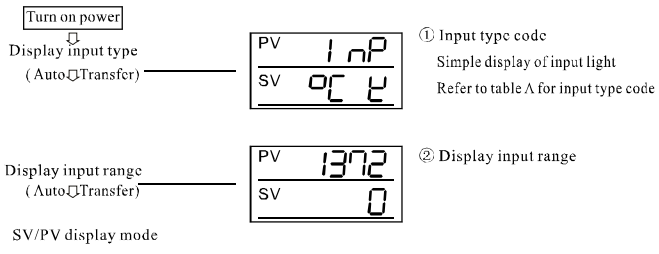


Table A

Display														
Input type	Thermocouple (TC)								Resistance temperature detector RTD		Voltage & current			
	K	J	R	S	B	E	N	T	PT 100	CU 50	oM	mV	mA	V

●SV setting mode

Under SV/PV normal display state, first, press "SET" key to make the SV display in the flashing state, second, press the "<" key to find the place number of required setting temperature, third, press "UP" or "DOWN" key to set the required temperature, after ending the setting, press "SET" key again to let the meter come back to SV/PV normal display state.

●Parameter setting mode

This parameter is used to set the alarming parameter, PD constant, etc., under the normal displaying state, press the "SET" key for three seconds, the PV display will show the parameter setting state, and SV display will show the corresponding value, then, press "SET" key in turn to display the parameter symbol specified in the following table;

Notice:

This machine has auto-return function, if the operator is amending the parameters and forgets coming back to the main display mode, the meter will return to the main display mode after 30s.

Prior to using this meter or amending the parameter, please read the following information earnestly.

In case that the meter doesn't display the following information, this means the meter has no this function.

Display symbol	Name	Description	Setting range	Factory value
	PV SV	Measureme nt value	Full range	
AL 1	AL1	Alarm 1 setting	Full range	
AL2	AL2	Alarm 2 setting	Full range	
ATU	ATU	Self setting	0: Auto-setting for closing 1: Auto-setting for opening	0
P	P	Proportional band (Refer to *1 for heating side)	ON/OFF control when setting to zero	30or 30.0
I	I	Integration time (s)	0-3600s No derivative action when setting to zero	240
d	D	Derivative time (s)	0-3600s No derivative action when setting to zero	60
Ar	Ar	Reference value (Refer to *2)	Auto setting after AT function starts	25
T	T	Working cycle (s)	Time scale period 1-100(秒) 1-100 (s)	(见*3)
Pc	Pc	Proportional band (Refrigeration side OUT2)	1-1000% 1-1000% of proportional band (Heating band)	100
db	db	Insensitive area	0000-0111	0
t	t	Working cycle (Refrigeration side)	0000-0111	20
Pb	Pb	V value amendment	-200-200 The unit is the same as (PV).	0
LCK	LCK	Data lock (Refer to *2)	0000-0111	0000

*1. When P≠0, the meter is in the PID control state, at this moment, set the "I, D" values reasonably, start "AT" auto-setting function for the first time use, to make the control in the best state. When P = 0, the meter is in the ON/OFF control, at this moment, set the control return difference "OH".

*2. PID inner reference value is unwanted to set manually, it will set this value automatically after"AT" auto setting.

*3. Relay contact output: 20s, voltage impulse output or driving of gas control tube is made by trigger output or gas control tube output for 2s.

*4 Setting data lock (LCK) function

The function of setting data lock function is used to prevent misoperation of some parameters that are not set often. This function has three stages unlocking states, parameter can be unlocked in each stage state, the parameter locked can't be set or changed, but can be monitored.

1.When LCK=0000, all data may be amended.

2.When LCK=0001, all data may not be amended except SV, AL1, AL2.

3.When LCK=0011, all data may not be amended except SV.

4.When LCK=0111, all data may not be amended.

Fault information indication

● When meter can't work normally, the meter diagnoses automatically to display the message prompt.

Message	Description	Solutions
Err	Meter occurs fault	Sent it for repairing
oooo	The wire is disconnected at inputting, the polarity is connected inversely or above input range	Check the input signal is wrong
uuuu	The wire is disconnected at inputting, the polarity is connected inversely or below input range	Check the input signal is wrong

Setting of meter parameter mode

● When the meter is energized normally, find the data lock parameter "LCK" according to the parameter setting mode, set the code to "1000", then press "SET" key to make the meter confirm, press both "SET" key and"<" key at the same time for 3s, the PV display will show "Cod". When "Cod"=0000, press "SET" key in turn to display following parameters in cycle.

Display symbol	Setting value	Description	
SL 1	0000	K	
	0001	J	
	0010	L	
	0011	E	
	0100	N	
	0101	T	
	0110	U	
	0111	R	
	1000	S	
	1001	B	
	1010	W5Re/W26Re	
	1011	P12	
	1100	Pt100	
	1101	JPT100	
SL 2	0000	Omit	
SL 3	0000	Omit	
SL 4	000	No set alarm 1 function	Selection of Alarm 1 (ALM1) type
	001	Upper-limit bias alarm	
	010	Upper/lower-limit bias alarm	
	011	Process value upper-limit alarm	
	101	Lower-limit bias alarm	
	110	With alarm (Alarm in area)	
	111	Process value lower limit alarm	
	0	No standby alarm function	Selection of alarm 1 standby function
	1	With standby alarm function	
SL 5	0000	Setting of Alarm 2 function	Ditto
SL 6	0	Forward operation control (Refrigeration)	Main control forward/reverse operation selection
	1	Reverse operation control (Heating)	
	0	Main control time scale output	Selection of main control output type
	1	Main control continuous output(4-20mA)	
SL 7	0	Excitation alarming	Excitation alarming/ Non-excitation alarming(Alarm 1 side)
	1	Non-excitation alarming	
	0	Excitation alarming	Excitation alarming/ Non-excitation alarming(Alarm 2 side)
	1	Non-excitation alarming	
SL 8	0000	Omit	
SL 9	0000	Omit	
SL 10	0000	Omit	
SL 11	0000	Omit	

● When Cod=0001, press SET key in turn to get the following parameters in circular display:

Display symbol	Factory value	Description	Setting range
SLH	Asper order	Upper limit of setting value measurement range	Refer to above table
SLL	Asper order	Lower limit of setting value measurement range	Refer to above table
PGdP	0	0Place number of decimal	0-3
oH	2 or 2.0	Main output no-operation bandwidth	0-100 or 0.0-100.0
AH 1	2 or 2.0	Alarm 1 output no-operation bandwidth	0-100 or 0.0-100.0
AH2	2 or 2.0	Alarm 2 output no-operation bandwidth	0-100 or 0.0-100.0
dF	1	1Digital filtering constant	0-100

Agent: