

CNTD



INDUSTRIAL AUTOMATION

智能仪表事业部 2020
Smart Meter Division

昌得电气科技有限公司
CNTD ELECTRIC TECHNOLOGY CO., LTD.



昌得电气科技有限公司，位于浙江省乐清经济开发区，从 2000 年起就专注于工控开关领域。我们以“质量第一，信誉至上”为信条，砥砺前行，如今已成为行业中的佼佼者。作为国内领先的工控开关制造商和数个世界五百强企业的合作伙伴，昌得电气科技有限公司一直致力于为客户提供最专业的工控开关与传感器解决方案。

昌得电气智能仪表事业部的产品包括：温控仪、计数器、计时器、时间继电器、工控智能屏等智能控制仪表类产品，产品广泛应用于热电、制药、冶金、电炉、热处理、食品、塑胶、包装等行业。

昌得电气科技有限公司的服务是产品价值的延伸。我们有针对国内客户、国外客户和大型项目的专业服务团队以及经验丰富的现场服务工程师。不管我们的客户来自哪里，处于什么行业，我们都能做到及时的响应和专业的服务，因此，昌得电气科技有限公司正成为越来越多客户的可靠支持者。

CNTD Electric Technology Co., Ltd., located at Yueqing Economic development zone, Zhejiang, China, has been specializing in industrial automation used switches since 2000, and is now an exemplary enterprise in our industry. As a leading industrial automation switch manufacturer and partner of many world top 500 companies, CNTD has been devoting to serving customers with both professional switch and sensor solutions.

The products of Changde Electric Smart Instrument Division include: temperature controllers, counters, timers, time relays, industrial control smart screens and other intelligent control instrument products, which are widely used in thermoelectricity, pharmaceuticals, metallurgy, electric furnaces, heat treatment, food, plastics, Packaging and other industries.

Excellent Service is a value adding for our high-quality products. We now have specialized teams serving Chinese customers, foreign customers and large projects customers, all supported by our experienced field service engineers. No matter which country our customers are coming from and what industry our customers are in, we can always response timely with our thoughtful service. For this reason, CNTD has now become a strong partner for more and more customers.

昌得电气 **智** 享其能

温度控制将
迈入 AI 时代

Product Selection

C TN 4 S - 4 1 1

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① 公司名称 Name of the company	C	昌得电气科技有限公司 CNTD		
② 系列 Series	TN	标准型数码双显示 PID 温度控制器 Standard digital dual display PID temperature controller		
	TZ	高精度数码双显示 PID 温度控制器 High precision digital dual display PID temperature controller		
③ 显示数位 Digit	4	9999 (4 位 Digit)		
④ 外形尺寸 Dimensions	S	48 × 48		
	V	48 × 96		
	M	72 × 72		
	L	96 × 96		
	H	96 × 48		
⑤ 电源电压 Voltage supply	2	24VAC 50/60Hz, 24-48VDC		
	4	开关电源 Switch power supply (100-240V AC, 50HZ)		
⑥ 控制输出 Control output	1	继电器 Relay	4	可控硅过零输出 SCR zero-crossing output
	2	SSR 输出 Output	5	可控硅自带 (5A) SCR built-in (5A)
	3 <input type="checkbox"/>	模拟量输出 Analog output 31: 0~5V, 32: 1~5V, 33: 0~10V, 34: 0~20ma, 35: 4~20ma		
	6	SSR+ 继电器输出 Relay output	A-Z	A-Z 字母组合, 代表其他或定制控制输出模式
⑦ 报警输出 Alarm output	1	1 路继电器 Way relay	3	1 路 Way SSR
	2	2 路继电器 Way relay	4	2 路 Way SSR
⑧ 分度号 Graduation	无 No	热电偶多输入 Thermocouple multiple input (默认 Default setting K), E, J, N, W3-25, W5-26		
	P	热电阻输入 Thermal resistance input PT100		
	C	热电阻输入 Thermal resistance input Cu50		

电气规格

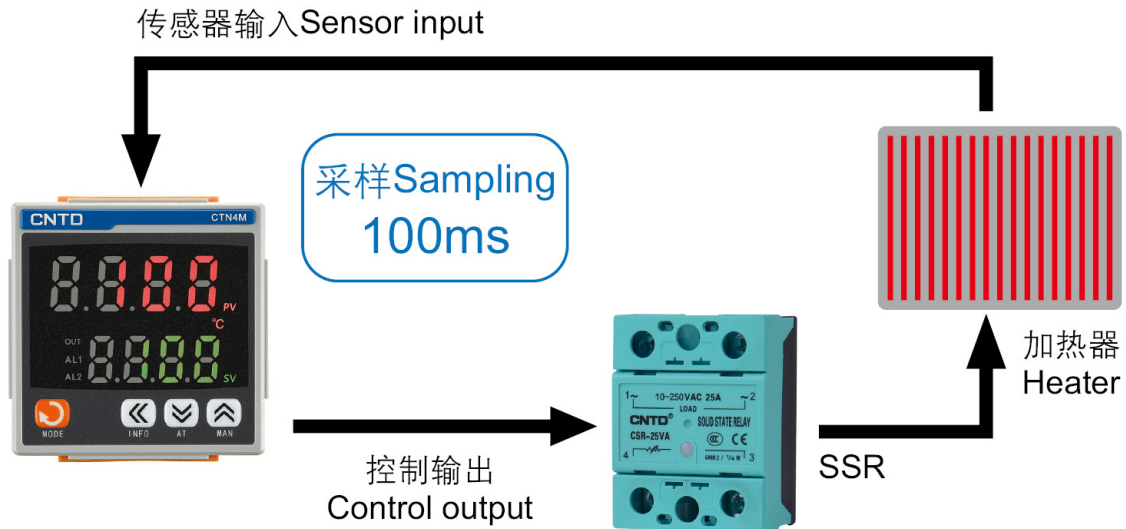
Electrical Specification

额定电压 Rated voltage	100-240V AC, 50HZ
电源功耗 Power consumption	≤ 5VA
工作环境 Operating ambient	环境温度: -10℃ ~ 60℃ 相对湿度: 35% - 85% RH (无冷凝) Ambient temperature: -10℃ ~ 60℃ Relative humidity: 35% - 85% RH (No-condensing)
存储温度 Storage Temperature	-25℃ -65℃ (避免结冰或结露 Avoid freezing)
分辨率 Esolution power	1℃, 0.1℃ (可调 Adjustable)
接线方式 Wiring method	接线端子 Connecting terminal
测量精度 Measuring accuracy	± 0.5%FS
内存保护 Memory Protection	非易失性内存 Non-volatile memory
安装环境 Installation conditions	安装种类 II, 污染等级 2 Installation type II, Pollution degree 2
继电器输出 Relay output	继电器接点 Relay contact: AC220V/DC30V,3A
逻辑电平输出 Logic level output	ON 时: DC12V; OFF 时: DC0.5V 以下; 最大流: 30mA, 负载电阻 ≥ 1K ON: DC12V; OFF: Below DC0.5V; Maximum Flow: 30mA, Oad resistance ≥ 1K

高速采样 High speed sampling

100ms 高速采样速率可以在需要快速响应速度的应用中实现精确的温度控制。

100ms high-speed sampling rate enables precise temperature control in applications requiring fast response speed.



SSR 驱动输出方式 SSR drive output method

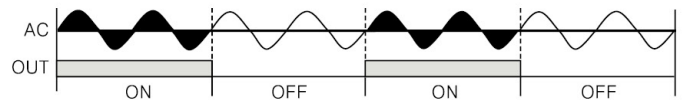
SSR 驱动输出 Drive output



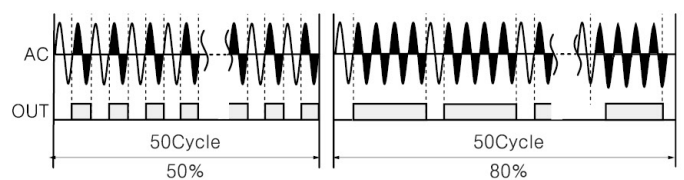
选择控制方式

Choose the control method

ON/OFF 控制 Control



手动输出量 Manual output



用户可选择 SSR 与 RELAY 驱动输出，在这个的基础上增加了 ON/OFF 控制，手动输出量，可实现理想的温度控制。

Users can choose SSR and RELAY drive output. On this basis, ON/OFF control and manual output are added to achieve ideal temperature control.

产品特点 Features

CNTD 昌得电气



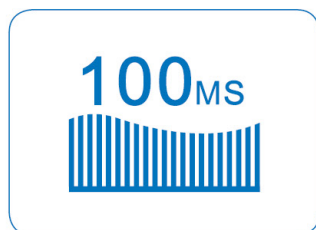
精准控温，性能稳定

Precise temperature control, stable performance

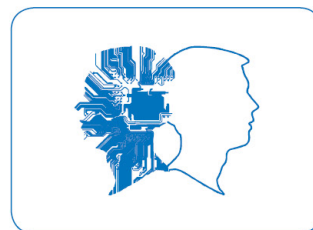
- 高速采样
 - AI 人工智能调节算法
 - 双 PID 加热制冷智能调节
 - AT 自动演算功能
 - 16 位 MCU 高速运算精度
 - 双数字显示 (PV/SV)
 - 100ms 的高速采样率和 0.5% 的显示精度
 - SSR 驱动输出 / 继电器输出 / 电流输出可选
 - 端子型接线方式：利于接线和维护
- High-speed sampling
 - AI artificial intelligence adjustment algorithm
 - Dual PID heating and cooling intelligent adjustment
 - AT automatic calculation function
 - 16-bit MCU high-speed operation accuracy
 - Dual digital display (PV / SV)
 - High-speed sampling rate of 100ms and display accuracy of 0.5%
 - SSR Drive output / Relay output / Current output optional
 - Terminal type wiring method: conducive to wiring and maintenance



采用高亮 LED 灯显示
Use high-brightness LED display



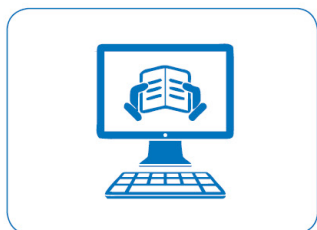
高速采样
High speed sampling



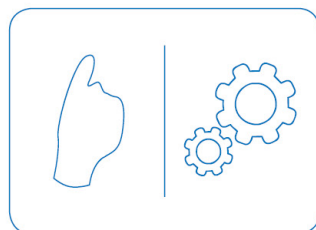
AI 人工智能调节算法
AI artificial intelligence adjustment algorithm



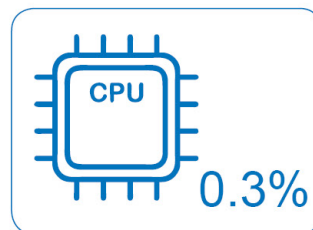
双 PID 加热制冷智能调节
Dual PID heating and cooling intelligent adjustment



AT 自动演算功能
AT automatic calculation function



手动 / 自动调节
Manual / Automatic adjustment




16 位 MCU 高速运算精度
16-bit MCU high-speed calculation accuracy



专利设计
Patent design

Operation panel function description



第一显示 (PV) 显示测量值 根据仪表状态显示各类提示符	First display (PV) Display measured value Display various prompts according to the instrument status
第二显示 (SV) 显示给定值 根据仪表状态显示各类参数值	Second display(SV) Display given value Display various parameter according to the instrument status
动作指示 OUT: 加热指示灯, 工作输出时亮 ALM1: 上限报警, 报警时工作输出时亮 ALM2: 下限报警, 报警时工作输出时亮	Action directive OUT: Heating indicator, light on when it is operating ALM1: Deviation high-limit alarm, light on when it is alarming ALM2: Deviation low-limit alarm, light on when it is alarming
加键 (↗) 调整数值变大 手动模式进入键 菜单及参数切换键	Plus key (↗) Increase the adjustment value Manual mode access key Menu parameter switch key
减键 (↘) 调整数值变小 自整定状态进入键 菜单及参数切换键	Minus key (↘) Decrease the adjustment value Auto-tuning state enter key Menu parameter switch key
INFO键 状态信息查看进入键	INFO key Status information view enter key
功能键 (Mode) 主菜单与子菜单进入键 参数修改及确认键	Function key (Mode) Main menu and submenu access key Parameter modification and confirmation key



详细使用参数请扫描二维码
Please scan the QR code for detailed usage parameters

应用场景

Application scenario



印刷机械
Printing machines



陶瓷机械
Ceramic machinery



橡塑机械
Rubber Machinery



包装机械
Packaging Machinery



注塑机
Injection molding machine

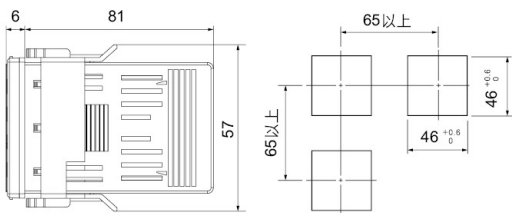


食品机械
Food Machinery

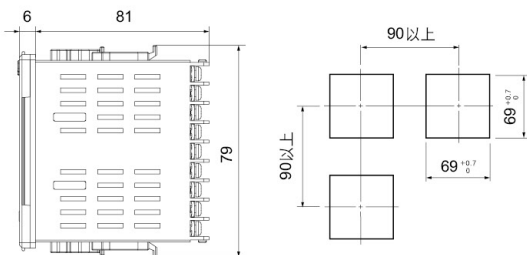
外形尺寸

Dimensions

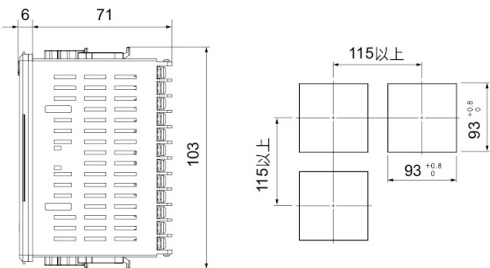
CTN4S
48 × 48mm



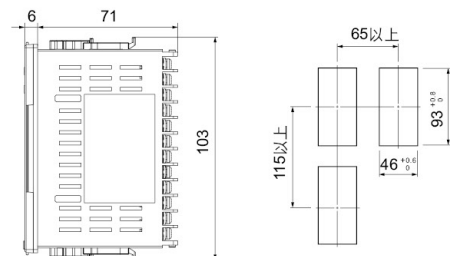
CTN4M
72 × 72mm



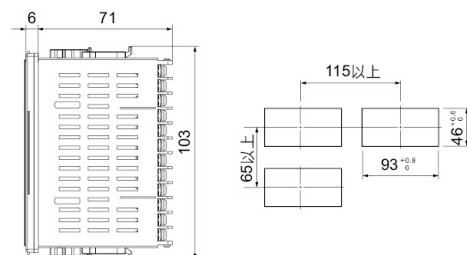
CTN4L
96 × 96mm



CTN4V
48 × 96mm



CTN4H
96 × 48mm





CNTD[®]

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www.cntd.com.cn
(中文)



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手册仅供参考

* 昌得电气科技有限公司进行着持续的创新，因此本手册中提供的信息仅供参考。请勿将本手册作为产品安装指南使用。非常规使用场合下的安装、操作和维护请咨询昌得电气科技有限公司的服务人员。

产品正确用法

* 产品应当被使用于一个确保产品运行时各项参数不超过额定值的环境中。产品被使用的系统中的相关风险，应当是受分析且通过多重方案控制的。请勿将产品单独用于例如紧急停止装置等涉及人身安全和财产的情况。

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PROPER USE OF PRODUCT

* The product must be used in an environment ensures that the product's operating parameters do not exceed the rating value. The risks associated with the system in which the product is used should be analyzed and controlled by multiple measures. Do not singly use the product in situations involving personal safety and property safety such as emergency stop device.