

Autonics TK Series PID Temperature Controllers

Part No. [TK4N-14CC](#)Part No. [TK4S-24CC](#)Part No. [TK4W-24CC](#)Part No. [TK4H-24CC](#)Part No. [TK4L-24CC](#)

Features

- Display & Accuracy: 4-digit 7-segment LED display (red PV, green SV, yellow indicators) with $\pm 0.3\%$ F.S. ± 1 digit at room temperature for thermocouples/RTDs
- Input Types: Extensive thermocouple support (K, J, E, T, B, R, S, N, C, G, L, U, Platinel II), RTD sensors (Cu50 Ω , Cu100 Ω , JPt100 Ω , Pt50 Ω , Pt100 Ω , Nickel120 Ω), and analog inputs (0–10V, 0–5V, 1–5V, 0–100 mV, 0–20 mA, 4–20 mA)
- Control Outputs: OUT1 relay (250 VAC 3A / 30 VDC 3A), SSR drive (11 VDC ± 2 V, ≤ 20 mA), or current output (DC 4–20 mA / 0–20 mA, load $\leq 500\Omega$); OUT2 available on heating/cooling models
- Control Types: Heating, cooling, or simultaneous heating and cooling with ON/OFF, P, PI, PD, or PID control algorithms; dead/overlap band adjustable 0–999.9 $^{\circ}\text{C}$
- Control Parameters: Proportional band 0.1–999.9 $^{\circ}\text{C}/^{\circ}\text{F}$, integral time 0–9999s, derivative time 0–9999s, control cycle 0.1–120.0s (relay/SSR) or 1.0–120.0s (current), manual reset 0–100%
- Alarm Outputs: Up to 3 alarm outputs* (250 VAC 3A relay) with configurable modes including deviation high/low limit, absolute value high/low limit, sensor break, heater break, and loop break detection
- Optional CT Input: Heater current monitoring 0.0–50.0A (CT ratio 1/1000, accuracy $\pm 5\%$ F.S. ± 1 digit) for heater disconnect alarm function; requires external CT, sold separately
- Digital Inputs: Contact or non-contact digital input terminals (ON: ≤ 2 k Ω , OFF: ≥ 90 k Ω) for multi-SV selection (up to 4 set values), control start/stop, auto/manual switching, or alarm reset functions
- Communication: Optional RS-485 Modbus RTU interface supporting 31 units (address 01–99), speeds 2400–38400 bps
- DAQMaster PC software for parameter configuration and monitoring; DAQMaster software is used via the SCM-US configuration cable on all models or RS485 on select models
- Special Features: Auto-tuning (TUN1 and TUN2 modes), RAMP function for gradual SV changes, multi-SV selection, manual control mode, SSR drive output options (standard/cycle/phase control), and parameter lock functions
- Power Supply: 100–240 VAC 50/60 Hz, ≤ 6 –8 VA with 90–110% permissible voltage range
- Environmental: Operating temperature -10 to +50 $^{\circ}\text{C}$ [+14 to +122 $^{\circ}\text{F}$], storage -20 to +60 $^{\circ}\text{C}$ [-4 to +140 $^{\circ}\text{F}$], humidity 35–85%RH, IP65 front panel protection, ≈ 10 -year memory retention with non-volatile semiconductor memory
- Three year warranty

* When operating mode is heating or cooling control, OUT2 can be used as alarm output 3 (except TK4N)



Overview

The Autonics TK Series offers simultaneous heating and cooling output PID temperature controllers with a 50 ms high-speed sampling rate and $\pm 0.3\%$ display accuracy. Available in five DIN panel sizes (TK4N: 48 × 24mm, TK4S: 48 × 48mm, TK4W: 96 × 48mm, TK4H: 48 × 96mm, TK4L: 96 × 96mm), these controllers support thermocouple, RTD, and analog voltage/current inputs with extensive sensor compatibility. Control outputs include relay (250 VAC 3A), SSR drive (11 VDC ± 2 V, ≤ 20 mA), and selectable current output (DC 4–20 mA or 0–20 mA), with switchable operation between current and pulse modes. The controllers offer ON/OFF, P, PI, PD, and PID control types for both heating

and cooling operations, with proportional bands from 0.1 to 999.9 $^{\circ}\text{C}/^{\circ}\text{F}$, integral time 0–9999 seconds, and derivative time 0–9999 seconds. Optional features include up to three alarm outputs, RS485 Modbus RTU communication, Retransmission (DC 4–20 mA), CT input for heater disconnect detection, and digital inputs for SV preset selection. Power supply is 100–240 VAC with IP65 front panel protection and comprehensive parameter configuration via front panel or PC software (DAQMaster).

Autonics TK Series PID Temperature Controllers

48 x 24mm (1/32 DIN) TK4N Series Temperature Controllers											
Part Number	Input Types	CT Input	Discrete Input	Control Output 1	Control Output 2	Alarm Relays	Retransmission	RS-485	Drawing Link	Wt (lb)	Price
TK4N-14CC	Current, voltage, RTD, T/C	—	—	Current or pulse	Current or pulse	(1) 0.5A Form A (SPST) relay	—	—	PDF	0.27	\$152.00
TK4N-14CN		Yes	—	Current or pulse	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.27	\$137.00
TK4N-14CR		—	—	Current or pulse	(1) 3A Form A (SPST) relay	(1) 0.5A Form A (SPST) relay	—	—	PDF	0.28	\$152.00
TK4N-14RN		Yes	—	(1) 3A Form A (SPST) relay	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-14RR		—	—	(1) 3A Form A (SPST) relay	(1) 3A Form A (SPST) relay	(1) 0.5A Form A (SPST) relay	—	—	PDF	0.28	\$152.00
TK4N-14SC		—	—	SSR drive (ON/OFF, phase, cycle)	Current or pulse	(1) 0.5A Form A (SPST) relay	—	—	PDF	0.27	\$152.00
TK4N-14SN		Yes	—	SSR drive (ON/OFF, phase, cycle)	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.27	\$137.00
TK4N-24CN		—	—	Current or pulse	—	(1) 3A Form A (SPST) relay, (1) 0.5A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-24RN		—	—	(1) 3A Form A (SPST) relay	—	(1) 3A Form A (SPST) relay, (1) 0.5A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-24SN		—	—	SSR drive (ON/OFF, phase, cycle)	—	(1) 3A Form A (SPST) relay, (1) 0.5A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-D4CC		—	Yes (2)	Current or pulse	Current or pulse	—	—	—	PDF	0.27	\$152.00
TK4N-D4CN		—	Yes (2)	Current or pulse	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-D4RN		—	Yes (2)	(1) 3A Form A (SPST) relay	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-D4RR		—	Yes (2)	(1) 3A Form A (SPST) relay	(1) 3A Form A (SPST) relay	—	—	—	PDF	0.28	\$152.00
TK4N-D4SN		—	Yes (2)	SSR drive (ON/OFF, phase, cycle)	—	(1) 3A Form A (SPST) relay	—	—	PDF	0.28	\$137.00
TK4N-R4CC		—	—	Current or pulse	Current or pulse	—	Yes	—	PDF	0.27	\$152.00
TK4N-R4CN		—	—	Current or pulse	—	(1) 3A Form A (SPST) relay	Yes	—	PDF	0.28	\$137.00
TK4N-R4CR		—	—	Current or pulse	(1) 3A Form A (SPST) relay	—	Yes	—	PDF	0.28	\$152.00
TK4N-R4RN		—	—	(1) 3A Form A (SPST) relay	—	(1) 3A Form A (SPST) relay	Yes	—	PDF	0.28	\$137.00
TK4N-R4RR		—	—	(1) 3A Form A (SPST) relay	(1) 3A Form A (SPST) relay	—	Yes	—	PDF	0.28	\$152.00
TK4N-R4SN		—	—	SSR drive (ON/OFF, phase, cycle)	—	(1) 3A Form A (SPST) relay	Yes	—	PDF	0.28	\$137.00
TK4N-T4CC		—	—	Current or pulse	Current or pulse	—	—	Yes	PDF	0.27	\$167.00
TK4N-T4CN		—	—	Current or pulse	—	(1) 3A Form A (SPST) relay	—	Yes	PDF	0.27	\$152.00
TK4N-T4CR		—	—	Current or pulse	(1) 3A Form A (SPST) relay	—	—	Yes	PDF	0.28	\$167.00
TK4N-T4RR		—	—	(1) 3A Form A (SPST) relay	(1) 3A Form A (SPST) relay	—	—	Yes	PDF	0.28	\$167.00
TK4N-T4SC		—	—	SSR drive (ON/OFF, phase, cycle)	Current or pulse	—	—	Yes	PDF	0.27	\$167.00

Note: For additional specification information, refer to the manufacturer's product and instruction manuals. For Modbus RTU information refer to the manufacturer's communication and software user manuals.

Autonics TK Series PID Temperature Controllers

Resources

Temperature Controller Resources			
Manufacturer Insert	Manufacturer Product Manual	Manufacturer User Manual	Manufacturer Communications Manual
PDF	PDF	PDF	PDF

Note: For additional specification information, refer to the manufacturer's product and instruction manuals. For Modbus RTU information refer to the manufacturer's communication and software user manuals.

Display, Indicators & Keys

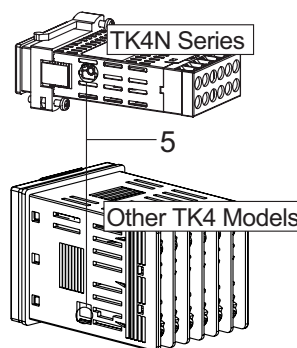


- PV display part (Red)**
 - Run mode: Displays PV (Present value).
 - Setting mode: Displays parameter name.
- SV display part (Green)**
 - Run mode: Displays SV (Setting value).
 - Setting mode: Displays parameter setting value.
- Input key**

Display	Name
[A/M]	Control switching key
[MODE]	Mode key
[◀], [▼], [▲]	Setting value control key

4. Indicator

Display	Name	Description
°C, %, °F	Unit	Displays selected unit (parameter)
AT	Auto tuning	Flashes during auto tuning every 1 sec
OUT1/2	Control output	Turns ON when the control output is ON - SSR output (cycle/phase control) MV over 5% ON - Current output Manual control: 0% OFF, over ON Auto control: below 2% OFF, over 3% ON
AL1/2	Alarm output	Turns ON when the alarm output is ON
MAN	Manual control	Turns ON during manual control
SV1/2/3	Multi SV	The SV indicator is ON which is currently displayed. (When using multi SV function)



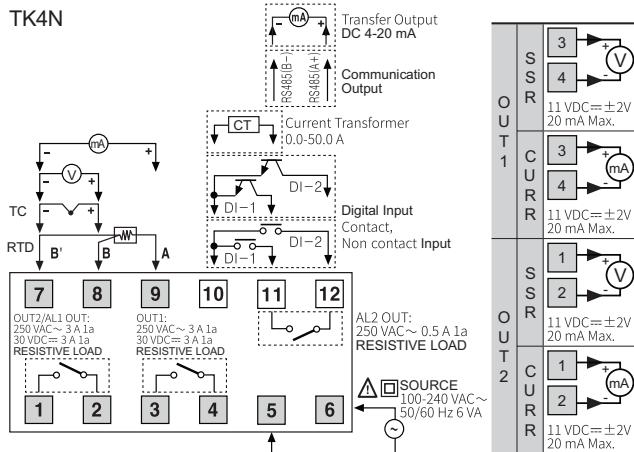
5. PC loader port:
For connecting communication converter (SCM Series).

Autonics TK Series PID Temperature Controllers

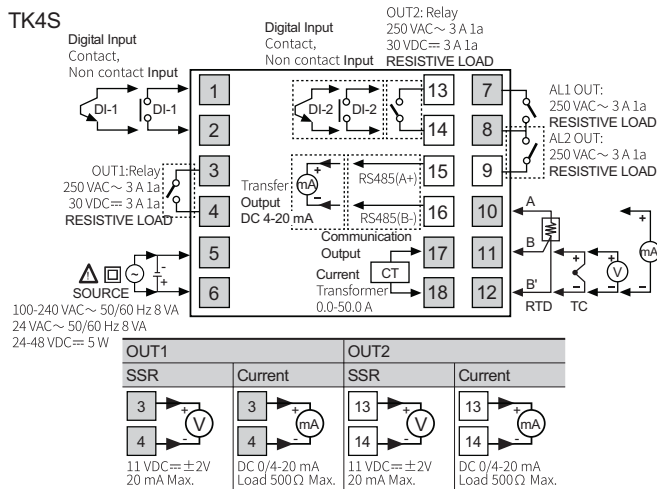
Connections

- Shaded terminals are standard model.
- Digital input is not electrically insulated from internal circuits, so it should be insulated when connecting other circuits.

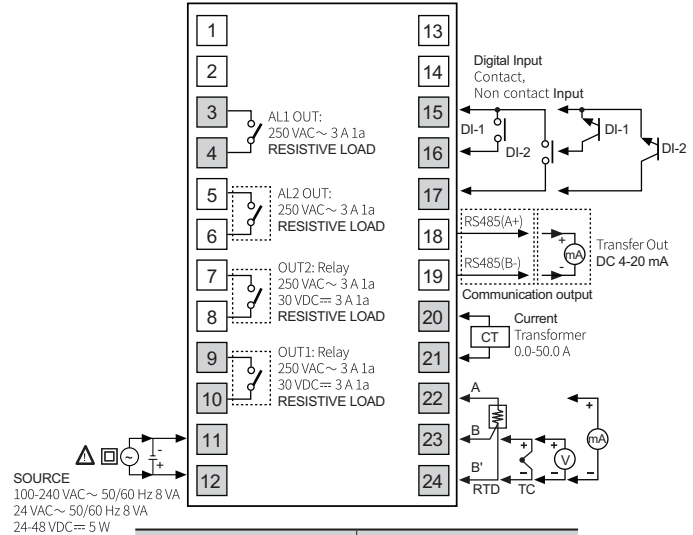
TK4N



TK4S



TK4H / W / L



OUT1		OUT2	
SSR	Current	SSR	Current
9	11 VDC ~ ±2V, 20 mA Max.	7	11 VDC ~ ±2V, 20 mA Max.
10	DC 0/4-20 mA, Load 500 Ω Max.	8	DC 0/4-20 mA, Load 500 Ω Max.

Note: For additional specification information, refer to the manufacturer's product and instruction manuals. For Modbus RTU information refer to the manufacturer's communication and software user manuals.

Autonics TK Series PID Temperature Controller Accessory

Overview

The Autonics SCM-US is a compact USB-to-serial converter that connects your PC directly to Autonics TK4 series temperature controllers for configuration and monitoring via DAQMaster software. The SCM-US plugs into any standard USB 2.0 port (Type A) and communicates with the device through a 4-pole stereo phone jack — no external power supply needed, as it draws power directly from the USB bus.

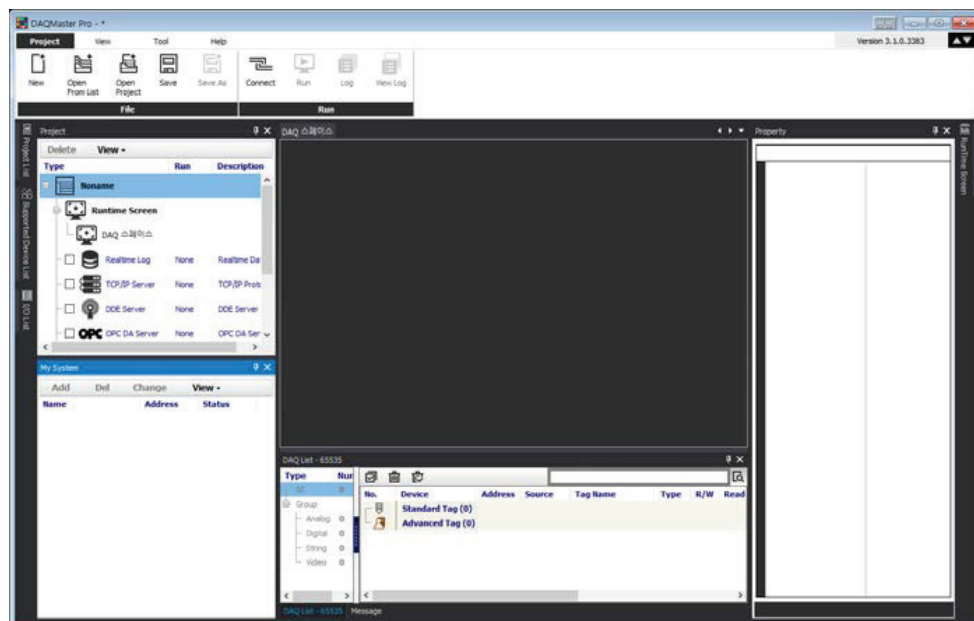
Features

- Interface Type: USB 2.0 Type A (male) to 4-pole stereo phone plug for serial communication with Autonics temperature controllers
- Power Supply: 5 VDC USB bus power (supplied from PC/USB host controller), power consumption $\approx 1\text{W}$, no external power required
- Communication Parameters: Speed 1,200–115,200 bps (recommended 9,600 bps), half-duplex type, configurable data bits (5/6/7/8-bit), stop bits (1/2-bit), parity (None/Odd/Even)
- Indicators: Dual LED status indicators — A.C.C (green) for Rx/Tx data transmission activity, O.P.R (red) for power-on status

Part No. **SCM-US**

TK Series PID Temperature Controller Accessory					
Part Number	Description	Manufacturer Insert	Manufacturer Manual	Wt (lb)	Price
<u>SCM-US</u>	Autonics configuration cable, USB to 2.5mm mini jack, 4.9ft/1.5m cable length. For use with Autonics TK4 series temperature controllers.	<u>PDF</u>	<u>PDF</u>	0.17	\$154.00

Autonics DAQMaster™ Software



Overview

DAQMaster is comprehensive GUI-based device management software developed by Autonics for monitoring and configuring multiple industrial devices simultaneously. The software supports data logging, graphical data analysis, and flexible project management, allowing users to save screen layouts and device configurations together in a project file.

Features

- Multiple device support: DAQMaster can simultaneously connect, monitor, and configure multiple devices, with an auto-scan function that detects units across different network addresses
- Data logging and analysis: Monitoring data can be logged in DAQMaster's native .duf format or CSV, and the built-in Data Analysis tool supports grid and graph views with export to .rtf, .txt, .html, or .csv
- Output of Modbus addresses and descriptions for supported Autonics devices makes connecting and commissioning easy

DAQMaster Software			
Part Number	Description	Manufacturer Manual	Price
<u>AUTONICS-DAQMASTER</u>	Autonics Windows configuration and monitoring software, free download only. For use with Autonics CT series counter timers with RS-485 communication port. Requires USB-485M USB to RS-485 communication adapter.	PDF	Free download
<u>USB-485M</u>	AutomationDirect PC adapter, USB A to RS-485 (RJ45/RJ12). For use with GS series AC drives, Toshiba AS3 series AC drives, SureServo servo drives, SOLO and ProSense process controllers, CLICK PLCs and P3-550 PLC.	N/A	\$70.00
<u>SCM-US</u>	Autonics configuration cable, USB to 2.5mm mini jack, 4.9ft/1.5m cable length. For use with Autonics TK4 series temperature controllers.	PDF	\$154.00