Cryogenic Autotune Temperature Controllers

CYC320 Series Starts at

$2200

1 YEAR WARRANTY — MADE IN USA

OMEGACARE℠ Extended Warranty Program

CYC322-02, $2200, shown smaller than actual size.

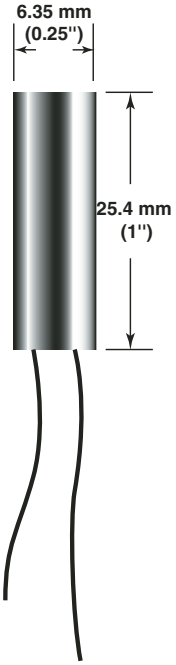
- **Autotune PID**
- **For Temperature Control from 1.4 to 800 K**
- **Electronic Accuracy and Control Stability to ±0.1˚C**
- **Autotuning–PID Parameters Automatically Determined**
- **Manual Tuning of PID Parameters via Front Panel**
- **Silicon Diode, 100 Ω Pt RTD, or Thermocouple Input**
- **Ability to Store One User Defined Calibration Curve**
- **RS232C Communications Standard**
- **25 Watt dc Heater Output**
- **Small Rack Mount Package**
- **Isolated Current Source Allows True 4-Wire Sensor Readings For High Instrument Accuracy**

The CYC320 Series Cryogenic Temperature Controllers offer a simple, low cost answer to basic low temperature control needs. They incorporate a scroll type entry so that setup can easily be accomplished from the front keypad. Three models are available to accommodate either silicone diode, RTD or thermocouple input. The operator can also enter a user-defined curve, for a custom sensor. This curve can have up to 97 points plus two end points. The curve values are entered over the standard RS232 interface.

A cryogenic system is a complex arrangement of thermal resistances and heat capacities which are represented by thermal mass and time constants.

The CYC320 Series analyzes this system's operating parameters on-line. The Autotune feature increases the user's efficiency by automatically calculating the correct proportional (gain), integral (reset) and derivative (rate) control parameters within minutes. Once set, the PID values are only modified when the system characteristics change. Time spent adjusting or fine-tuning the controller is eliminated, leaving the user with more time to experiment with something other than controller settings! Heater output of the CYC230 Series is a variable dc current for quiet, stable control.

CYC321-01 rear panel.



CYC320-HTR cartridge heater, $70.

Specifications

CYC321: Silicon Diode, 1.4 K to 475 K
CYC322: 100 Ω Platinum RTD, 30 K to 800 K
CYC324: Ch-AuFe (0.07%) thermocouple, 4 K to 325 K; E thermocouple, 40 K to 425 K; K thermocouple, 90 K to 325 K; T thermocouple, 90 K to 485 K
Curve Storage: Memory space for one 99 point user defined curve
Display: 8 digit alphanumeric LED display
Resolution: 0.1 (K or ˚C)
Instrument Accuracy when used with: Silicon diode: ±0.2 mV ±0.02% rdg; 100 Ω RTD: ±20 mV ±0.05% rdg; thermocouple: ±2 µV ±0.05% rdg

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

System Accuracy: Instrument accuracy plus sensor accuracy; ranges from 0.1 K at 4.2 K to 0.6 K at 800 K
Repeatability: ±0.1 (K or ˚C) or better (dependent on sensor sensitivity)
TEMPERATURE CONTROL CHARACTERISTICS
Setpoint Resolution: 0.1 (K or ˚C)
Control Stability: Better than ±0.1 K in a properly designed system
Automatic Control Modes: P, PI, or PID control user selectable
Manual Control Modes: Proportional (Gain) 0 to 999; Integral (Reset) 1 to 999 sec; Derivative (Rate) 0 to 50% of Integral Time
Heater Output: 25 Watts/1 Amp at 25 V compliance

Heater Load: 25 Ω or greater. Automatic shutoff if load < 20 Ω
GENERAL
Response Time: 1 sec. electronic data update rate (typical)
Communications: RS232C three-wire, half-duplex, asynchronous transmission at 300 or 1200 baud. RJ-11 modular socket. User may input Setpoint, Heater On/Off, Curve Data; Output data includes Temperature, Setpoint, Heater %, External Curve
Power: 110 or 220 Vac selectable, 65 VA
Dimensions: 217 H x 90 W x 317 mm D (8.5 x 3.5 x 12.5")
Weight: 2.7 kg (6 lb)
CYC320-HTR Specifications
Cartridge Heater: Nickel-Chromium Resistance wire with MgO Insulation, Two solid pins

AVAILABLE FOR FAST DELIVERY!

To Order *(Specify Model Number)*

Model No.	Price	Input Type
CYC322-02	$2200	Pt100 RTD controller
CYC324-03	2300	Thermocouple controller

Comes with sensor input connector power cord, double banana plug for heater output and operator's manual.

Note: *Units are calibrated at no additional cost.*

Ordering Example: CYC322-02*, silicone diode controller,* ***CYC320-SHC,*** *heater cable assembly,* ***CY7-SD7,*** *silicon sensor, $2200 + 175 + 140 =* ***$2515.***

OCW-3, *OMEGACARE℠ extends the standard 1-year warranty to a total of 4 years ($350), $2515 + 350 =* ***$2865.***

Accessories

Model No.	Price	Description
CYC320-SHC	$175	Cable assembly for CYC321 and CYC322
CYC320-HTR	70	Cartridge heater, 25 watts
CYD200-C	30	RJ11 jack and 3 m (10') of cable, RS-232 adaptor
CYD200-D	51	RJ11 to DB25 adaptor, connects RJ11 to 25-pin RS-232 serial port
CYD200-DB9	51	RJ11 to DB9 adaptor, connects RJ11 to 9-pin RS-232 serial port

For information on precision calibration option yielding highest readout accuracy, please contact our Cryogenic Applications Engineers at 1-800-TC-OMEGA.

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• Heaters

Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters

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