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1/16 DIN MICROMEGA® Autotune PID Temperature/Process Controllers

CN77000 Series

5 YEAR WARRANTY



CN77533 NEMA 4 square cutout.

Panel Punches Available, Visit omega.com/panelpunches

Shown actual size.



CN77333-A2 NEMA 12 style square cutout.

- **High Accuracy: ±0.5°C (0.9°F), 0.03% Rdg**
- **High Quality Backed by 5-Year Warranty**
- **Universal Inputs—Process Voltage/Current, Thermocouple, RTD**
- **Dual 4-Digit LED Display and Indicators for Output and Alarm Status**
- **Optional RS232 or RS485, OMEGA® Protocol**
- **Relay, SSR, DC Pulse, 0 to 10 V, and 0 to 20 mA Output Types**
- **Ramp-to-Setpoint Feature**
- **Universal Power Supply, 90 to 250 Vac or Vdc**
- **Dual Output and Dual Alarm Capability**
- **Isolated Analog Output or Remote Setpoint Selection**

The high-accuracy, high-quality MICROMEGA® controllers offer unparalleled flexibility in process control. Each unit allows the user to select the input type, from 10 thermocouple Types (J, K, T, E, R, S, B, C, N, and J DIN), Pt RTDs (100, 500, or 1000 Ω, with either 385 or 392 curve), or analog voltage or current input. The voltage/current inputs are fully scalable to engineering units, with a selectable decimal point, perfect for use with pressure, flow, or other process inputs.

The MICROMEGA® controller features a large, dual LED display, front-panel configuration, selectable temperature/process inputs, and universal power supply that accepts 90 to 250 Vac or Vdc. Available in single- and dual-output configurations, the CN77000 Series is available with relay, SSR, DC pulse, or analog voltage or current outputs. A single alarm is standard. Options include a second alarm, RS232, RS485, analog output, and remote setpoint selection.

The "300" Series controllers offer many features of larger, ¼ DIN controllers in a compact, 1/16 DIN size. These controllers feature a 1/16 DIN cutout and bezel with a NEMA 12 (IP54) rating, and dual LED displays, which show different colors for the process and setpoint values. Individual indicators provide output and alarm status.

The "500" features a 1/16 DIN cutout, 53.3 mm (2.1") square face with NEMA 4 (IP65) rating, large dual LED display, front-panel configuration, and selectable temperature/process inputs. Available in single- and dual-output configurations, the CN77500 is available with relay, SSR, DC pulse, or analog voltage or current outputs. A single alarm is standard.

The R300 and R500 controllers feature a detachable display and adaptor to allow mounting in a round, 44 mm (1.75") cutout. This feature allows users to prepare the panel with a standard round hole saw as well as the conventional 1/16 DIN cutout.The 2-piece design snaps together, for quick, easy installation.

Put a Square Controller in a Round Hole!



CN77000 R300 and R500 controllers shown with model RHS-43 hole saw for easy-to-drill round holes. See last page for ordering information.

Specifications

Accuracy: ±0.5°C (0.9°F) temp; 0.03% rdg process
Resolution: 1°/0.1°; 10 µV process
Temperature Stability: 0.08°C/°C; 50 ppm/°C process
Thermocouple Cold-End Tracking: 0.05°C/°C
NMRR: 60 dB
CMRR: 120 dB
Common-Mode Voltage: 1500 V peak test, 350 V per IEC spacing
A/D Conversion: Dual slope
Reading Rate: 3 samples/s
Digital Filter: Programmable
Display: Dual 4-digit, 7-segment LED, 9.2 mm (0.36"); red process variable, green setpoint; indicators for output and alarm status; 7.6 mm (0.3") for NEMA 12 (IP54) units
Warm-Up to Rated Accuracy: 30 min

Input

Input Types: Thermocouple, RTD, analog voltage, analog current
Thermocouple Lead Resistance: 100 Ω maximum
RTD Input: 2-, 3- or 4-wire; 100, 500 and 1000 Ω; 0.00385 or 0.00392 Pt curve
Voltage Input: 0 to 100 mV, 0 to 1V, 0 to 10 Vdc
Current Input: 0 to 20 mA, 4 to 20 mA
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 s for 99.9%
Decimal Selection: None, 0.1 or 0.01
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -9999 to 9999

Control

Action: Reverse (heat) or direct (cool)
Modes: Time proportioning and proportional control modes; selectable preset tune, autotune, PID, proportional, proportional with integral, proportional with derivative with anti-reset windup, on/off
Rate: 0 to 999.9 s
Reset: 0 to 99 minutes, 59 seconds
Cycle Time: 1 to 199 seconds; set to 0 for on/off operation
Gain: 0.5 to 100% of span; setpoints 1 or 2
Damping: 1 to 8 in unit steps
Soak: 00.00 to 99.59 (HH.MM)
Ramp to Setpoint: 00.00 to 99.59 (HH.MM)
Autotune: For heating only
Break Protection: Programmable up- or down-scale

Control Output

Relay: 5 A @ 120 Vac, 3 A @ 240 Vac; configurable for on/off, PID or ramp and soak; output 1: SPDT type; output 2: SPST type
SSR: Rated 0.5 A @ 120/240 Vac, continuous
DC Pulse: Non-isolated; 10 Vdc @ 20 mA
Analog Output: Non-isolated 0 to 10 Vdc or 0 to 20 mA; 500 Ω maximum

Options

Remote Setpoint Selection: Up to 4 setpoints stored in memory; contact closure selection
Analog Output: Isolated 0 to 10 Vdc or 0 to 20 mA, programmable

Communications

RS232 or RS485: OMEGA® protocol 300 to 19.2 Kb; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS485: Addressable from 0 to 199
Connection: Screw terminals

Alarms

Type: SPST relay, 5 A @ 120 Vac, 3 A @ 240 Vac
Operation: High/low, latching/non-latching and process/deviation; front-panel configuration

Insulation

Power to Input or Output: 2500 Vac/Vdc, except alarm 2 option has only 1500 Vac/Vdc between inputs 500 Vac/Vdc

General

Power: 90 to 250 Vac/Vdc, 50 to 400 Hz
Operating Ambient: 0 to 55°C (32 to 131°F), 90% RH non-condensing
Power Consumption: 6 VA maximum @ 120 Vac

Panel Cutout

CN77R000 Series: 44.5 mm (1.75") diameter round cutout
CN77300 and CN77500 Series: 45 mm (1.772") square, 1/16 DIN
Dimensions:
CN77R000 Series: 48 H x 48 W x 135 mm D (1.89 x 1.89 x 5.32")
CN77300 Series: 48 H x 48 W x 123.3 mm D (1.89 x 1.89 x 4.85")
CN77500 Series: 53 H x 53 W x 123.3 mm D (2.1 x 2.1 x 4.85")
Weight: 227 g (0.5 lb)

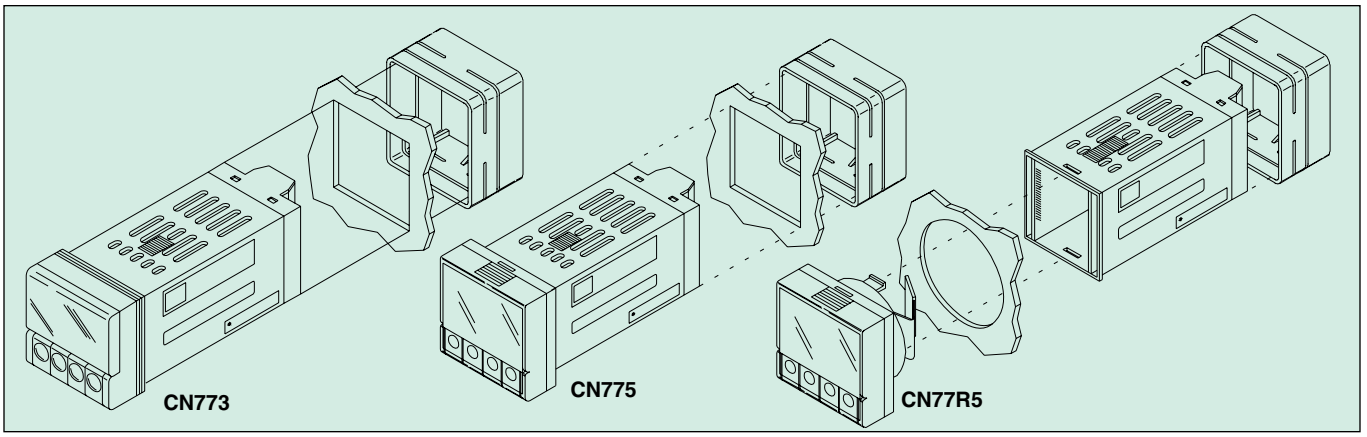


SPC116-S splashproof cover for 1/16 DIN controller.

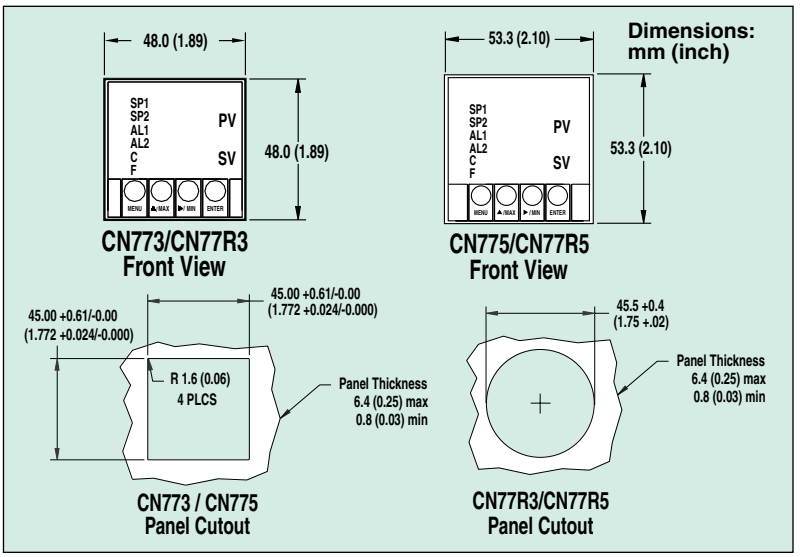


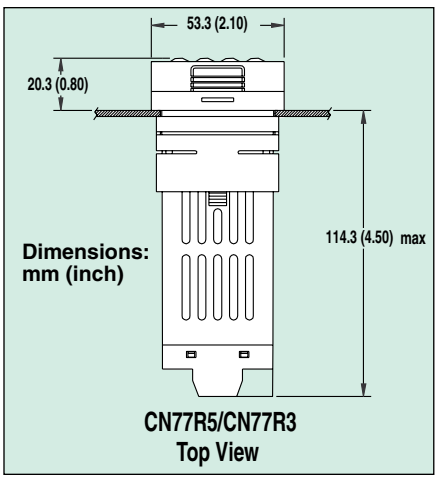
Trim plates for mounting 1/16 controller in existing 1/4 DIN or 1/8 DIN cutouts.

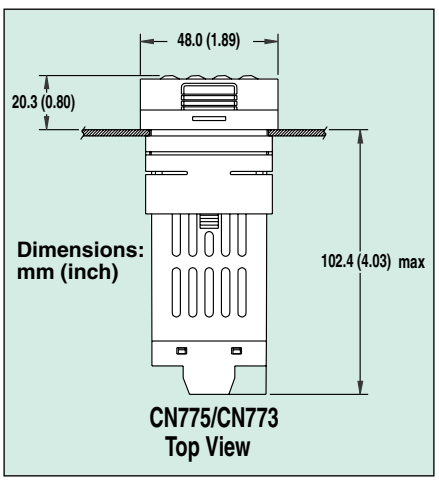
Input Type		Range	Accuracy
J	Iron-Constantan	-210 to 760°C/-346 to 1400°F	0.4°C/0.7°F
K	CHROMEGA®-ALOMEGA®	-270 to -160°C/-160 to 1372°C -454 to -256°F/-256 to 2502°F	1.0°C/0.4°C 1.8°F/0.7°F
T	Copper-Constantan	-270 to -190°C/-190 to 400°C -454 to -310°F/-310 to 752°F	1.0°C/0.4°C 1.8°F/0.7°F
E	CHROMEGA®-Constantan	-270 to -220°C/-220 to 1000°C -454 to -364°F/-364 to 1832°F	1.0°C/0.4°C 1.8°F/0.7°F
R	Pt/13%Rh-Pt	-50 to 40°C/40 to 1768°C -58 to 104°F/104 to 3214°F	1.0°C/0.5°C 1.8°F/0.9°F
S	Pt/10%Rh-Pt	-50 to 100°C/100 to 1768°C -58 to 212°F/212 to 3214°F	1.0°C/0.5°C 1.8°F/0.9°F
B	30%Rh-Pt/6%Rh-Pt	100 to 640°C/640 to 1820°C 212 to 1184°F/1184 to 3308°F	1.0°C/0.5°C 1.8°F/0.9°F
C	5%Re-W/26%Re-W	200 to 2320°C/400 to 4208°F	0.4°C/0.7°F
N	Nicrosil-Nisil	-250 to -100°C/-100 to 1300°C -418 to -148°F/-148 to 2372°F	1.0°C/0.4°C 1.8°F/0.7°F
L	J DIN	-200 to 900°C/-328 to 1652°F	0.4°C/0.7°F
RTD	Pt, 0.00385, 100Ω, 500Ω, 1000Ω	-200 to 900°C/-328 to 1652°F	0.4°C/0.7°F
	Pt, 0.00392, 100Ω, 500Ω, 1000Ω	-200 to 850°C/-328 to 1562°F	0.4°C/0.7°F
Process voltage		0 to 100 mV, 0 to 1 V, 0 to 10 Vdc	0.03% rdg
Process current		0 to 20 mA, 4 to 20 mA	0.03% rdg

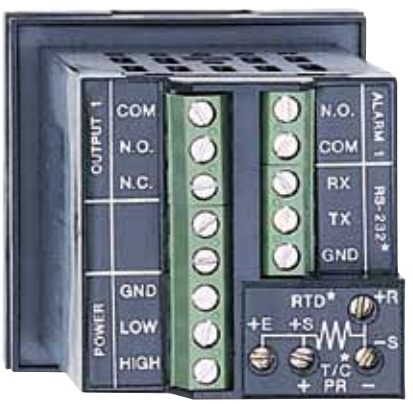




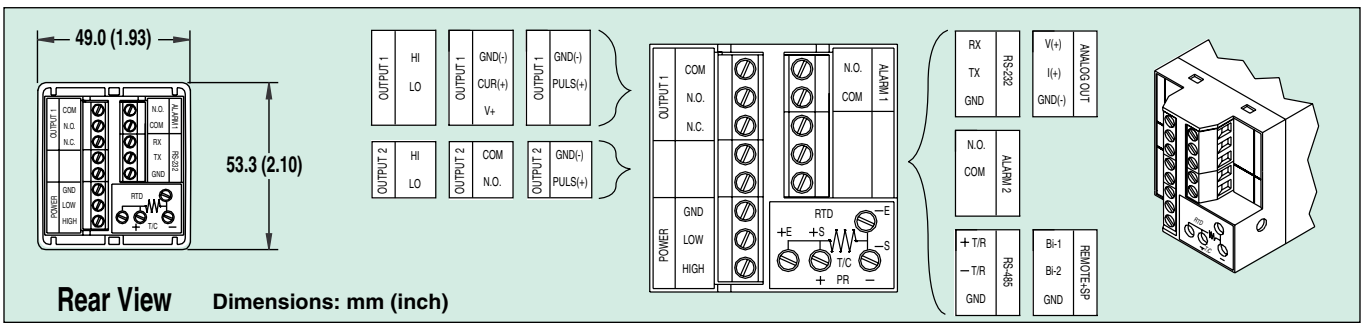








Rear View



Rear View Dimensions: mm (inch)



AVAILABLE FOR FAST DELIVERY!

Programming Cradle

With the MICROMEGA® programming Cradle and our FREE software, setting up and configuring any quantity of MICROMEGA® controllers is fast and easy—especially valuable for OEM applications and systems integrators. Both the CN775 and CN773 front-removable MICROMEGA® controllers with serial communications are quickly and easily plugged in, programmed, and removed from the cradle. The cradle includes a standard 9-pin mini DIN cable for connection to a computer's RS232 (or RS485) serial port and is powered by 90 to 250 Vac/Vdc. The free Windows configuration software is menu driven and extremely user friendly (requires either MICROMEGA® "C2" RS232 or "C4" RS485 serial communications options).

To Order ***(*Complete Model Number)***

Model Number					Description
CN77	**(*)**	**(*)**	**(*)**	**(*)**	
	3				NEMA 12 face with 1/16 DIN cutout
	R3				NEMA 1 face with 44 mm (1¾") round cutout
	5				NEMA 4/IP65 face with 1/16 DIN cutout
	R5				NEMA 1 face with 44 mm (1¾") round cutout
					Additional Cost for Second Output Only
		2	**2**		SSR solid state relay (0.5 A @ 120/240 Vac)
		3	**3**		Relay SPDT 5 A, relay SPST 5 A
		4	**4**		Pulsed 10 Vdc @ 20 mA maximum
		5			Non-isolated 0 to 10 V or 0 to 20 mA
					Additional Options
				-A2	Second alarm relay
				-C2	Isolated RS232
				-C4	Isolated RS485
				-PV	Isolated analog output (scaled from PV)
				-RSP	Remote setpoint (alternate setpoint enable)

Comes complete with operator's manual.

Ordering Examples: CN77533-PV, *dual-output controller, 1/8 DIN cutout and bezel, NEMA 4/IP65 face, with 5 A SPDT relay output 1, 5 A SPST relay output 2, and optional analog output.*

CN77R544-A2, *controller with dual pulse-type output and second alarm relay,* ***RHS-43,*** *arbored hole saw.*

CN77353*, controller with NEMA 12 face, analog output and relay output,* ***TP4,*** *trim plate adaptor.*

Accessories

Model Number	Description
RHS-43	Arbored hole saw 43 mm (1.68") for CN77R
SPC116-S	Splashproof cover for 1/16 DIN controllers
TP4	Trim plate adaptor to install 1/16 DIN meter in existing ¼ DIN panel cutout
TP6	Trim plate adapter to install 1/16 DIN meter in existing ⅛ DIN panel cutout
CN77PC	Programming cradle
CNQUENCHARC	Noise suppression RC snubber (2 leads),110 to 230 Vac

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