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TECHNOLOGY GROUP

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

MONOGRAM SERIES

CN77000 Series

$219
Basic Unit

5 YEAR WARRANTY | MADE IN USA

Shown actual size



CN77500 Series NEMA-4 Square Cutout



CN77300 Series DP41 Style Square Cutout

- **High Accuracy ±0.5°C (0.9°F), 0.03% Reading**
- **High Quality – Extended 5-Year Warranty at No Extra Charge**
- **Universal Inputs – Process Voltage/Current Thermocouple, RTD**
- **Dual 4-Digit LED Display and Indicators for Output and Alarm Status**
- **Optional RS-232, RS-485, OMEGA® Protocol and MODBUS Protocol**
- **Relay, SSR, dc Pulse, 0 to 10 V and 0 to 20 mA Output Types**
- **Ramp up to Setpoint Feature Standard**
- **Universal Power Supply, 90-250 Vac or Vdc (Optional 10-34 Vac or Vdc)**
- **Dual Output and Dual Alarm Capability**
- **Isolated Analog Output or Remote Setpoint Selection**



"R" Series - For easy-to-drill round holes

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 RTD's (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 selectable decimal point, perfect for use with pressure, flow or other process input.

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, analog voltage or current outputs. A single alarm is standard. Options include a second alarm, RS-232, RS-485, analog output or remote setpoint selection.

The "300" series controllers have 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 rating, dual LED displays, with different colors for the actual 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 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, analog voltage or current outputs. A single alarm is standard.

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

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 per second
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 units
Warmup to Rated Accuracy: 30 min

Input

Input Types: Thermocouple, RTD, analog voltage, analog current
Thermocouple Lead Resistance:
100 Ω max
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 1 V, 0 to 10 Vdc
Current Input: 0 to 20 mA, 4 to 20 mA
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec 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, auto-tune, PID, proportional, proportional with integral, proportional with derivative with anti-reset windup, on-off
Rate: 0 to 999.9 sec
Reset: 0 to 99 min 59 sec
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:
Operator initiated from front panel
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 1 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 max

Options

Remote Setpoint Selection:
Up to 3 setpoints stored in memory; contact closure selection
Analog Output: Isolated 0 to 10 Vdc or 0 to 20 mA, programmable

Communications

RS-232 or RS-485: OMEGA® Protocol and MODBUS Protocol 300 to 19.2 k baud; complete programmable set-up capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS-485:
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 configurations

Insulation

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

General

Power: 90 to 250 Vac/dc, 50 to 400 Hz; 10 to 34 Vac/dc power optional
Operating Ambient: 0 to 55°C (32 to 131°F), 90% RH non-condensing
Power Consumption:
6 Va max @ 120 Vac

Panel Cutout

CN77R000 series:
44.5 mm (1.75") dia. round cutout;
CN77300 and CN77500 series:
45 mm (1.772") square, 1⁄16 DIN
Dimensions:
CN77R000 Series:
48 H x 48 W x 144.7 mm D (1.89 x 1.89 x 5.70")
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)



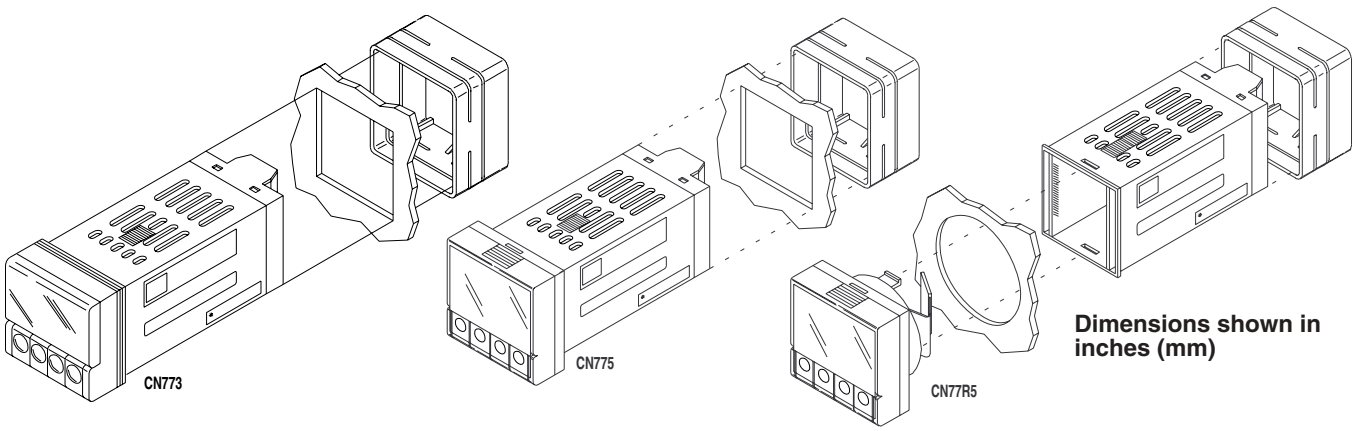
Splash-Proof Cover for ⅛ DIN Controller



Trim plates for mounting ⅛ controller in existing ¼ DIN or ⅛ DIN cutouts

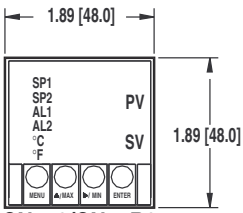
	Input Type	Range	Accuracy
J	Iron-Constantan	-210 to 760°C/-346 to 1400°F	0.4°C/0.7°F
K	CHROMEGA®-ALOMEGA®	-270 to -160°C/-160 to 1372°C -454 to -256°F/-256 to 2502°F	1.0°C/0.4°C 1.8°F/0.7°F
T	Copper-Constantan	-270 to -190°C/-190 to 400°C -454 to -310°F/-310 to 752°F	1.0°C/0.4°C 1.8°F/0.7°F
E	CHROMEGA®-Constantan	-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	0 to 2320°C/32 to 4208°F	0.4°C/0.7°
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

1/16 DIN MICROMEGA®

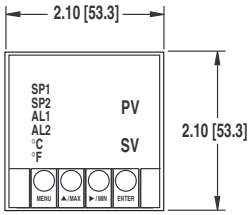


Dimensions shown in inches (mm)

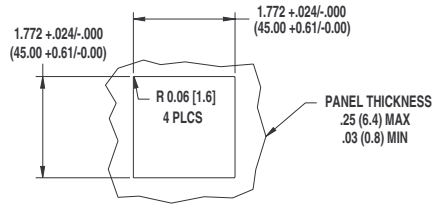




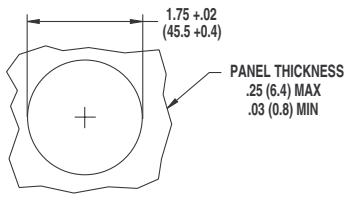
CN773/CN77R3
FRONT VIEW



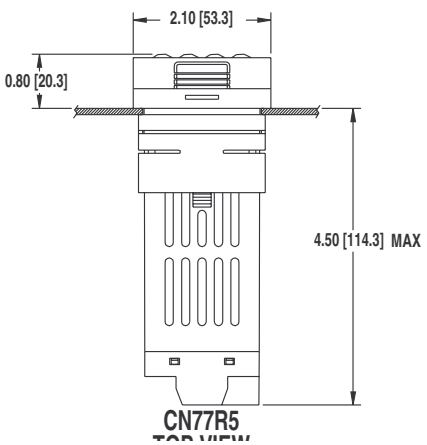
CN775 / CN77R5
FRONT VIEW



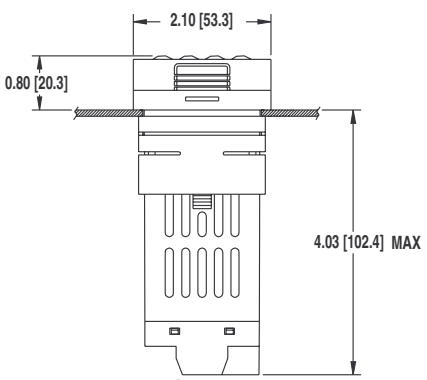
CN773 / CN775
PANEL CUTOUT



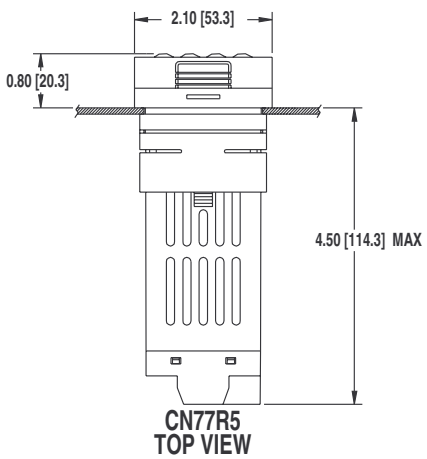
CN77R3/CN77R5
PANEL CUTOUT



CN77R5
TOP VIEW

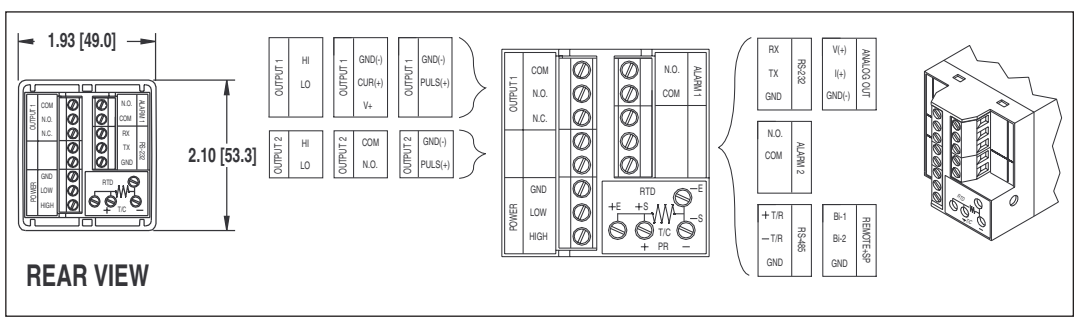


CN775
TOP VIEW



CN77R5
TOP VIEW





REAR VIEW

CUSTOM CONFIGURATIONS

Custom firmware and hardware available in quantity.

Custom color bezels and Enclosures are available for Original Equipment Manufacturers.
Enhance the appearance of your equipment design with custom colors.





CUSTOM COLORS

Consult the OMEGA® OEM GROUP.



CE The following LVD (Low Voltage Directive/Safety) requirements have been met to comply with EN 61010-1, 1993 (Electrical equipment for measurement, control and laboratory use)

1. Pollution Degree 2 2. Installation Category II 3. Double Insulation

CN77XXX complies with the following EMC Immunity Standards as tested per EN 50082-2, 1995 (Industrial environment)

Phenomena	Test Specification	Basic Standard
Electrostatic Discharge	+/- 4 kV contact discharge +/- 8 kV air discharge	EN 1000-4-2 Perf. Criteria B
Radio Frequency electromagnetic field	27 - 1000 MHz 10 V/m 80% AM (1 KHz)	EN 1000-4-3 Perf. Criteria A
Fast Transients	+/- 2 kV (ac mains) +/- 1 kV (dc, signal I/O) 5/50 ns Tr/Th, 5 KHz repit.	EN 1000-4-4 Perf. Criteria B
Radio Frequency conducted	0.15 - 80 MHz 10 V/m 80% AM (1 KHz)	EN 1000-4-6 Perf. Criteria A
Surges	+/- 2 kV line to earth +/- 1 kV line to line 1.2/50 (8/20) µs Tr/Th	EN 1000-4-5 Perf. Criteria B
Voltage Dips	30% reduction 10 ms 60% reduction 100 ms	EN 1000-4-11 Perf. Criteria B
Voltage Interruption	>95% reduction 5000 ms	EN 1000-4-11 Perf. Criteria C

CN77XXX comply with the following EMC Emission Standards as tested per EN 50081-1, 1997 (Residential, Commercial and Light Industrial)

Phenomena	Frequency Range	Limits	Basic Standard
Radiated Emission	30 - 230 MHz 230 - 1000 MHz	30 dB µV/m at 10 m 37 dB µV/m at 10 m quasi peak	CISPR 22 Class B
Conducted Emission	0.15-0.5 MHz 0.5-5 MHz 5-30 MHz	66-56 dB µV q.peak 56 dB µV quasi peak 60 dB µV quasi peak	CISPR 22 Class B

Most Popular Models	Price
CN77343	$229
CN77R333-PV	294
CN77543	239
CN77R544-C2	289
CN77544	239

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 RS-232 (or RS-485) serial port and is powered by 90-250 Vac/dc. The free Windows configuration software is menu-driven and extremely user-friendly. (Requires either MICROMEGA® "C2" RS-232 or "C4" RS-485 serial communications options.)

Programming Cradle



To Order *(* Complete Model No.)*

Model Number						Description	Price	
CN77	(*)	(*)	(*)	(*)	(*)			
	3					NEMA-12 face with 1/16 DIN cutout	$219	
	R3					NEMA-1 face with 1¾" (44mm) round cutout	219	
	5					NEMA-4/IP65 face with 1/16 DIN cutout	229	
	R5					NEMA-1 face with 1¾" (44mm) round cutout	229	
						Add $10 for second output only		
			0			No second output	N/C	
		2	2			†SSR solid state relay (1 A @ 120/240 Vac)	N/C	10
		3	3			Relay SPDT 5 A @ 120, 3 A @ 240 Vac	N/C	10
		4	4			Pulsed 10 Vdc @ 20 mA max	N/C	10
		5				Non-isolated 0 to 10 V or 0 to 20 mA	N/C	
						Additional options		
				-A2		Second alarm relay	6	
				-C2		Isolated RS-232	50	
				-C4		Isolated RS-485	50	
				-PV		Isolated analog output (scaled from PV)	65	
				-RSP		Remote set point (alternate set point enable)	25	

Ordering Example: CN77533-PV**, dual output controller, 1/16 DIN cutout and bezel, NEMA-4/IP65 face, with 5 A form "C" relays and optional analog output, $229 + 10 + 65 = **$304

Accessories

Model Number	Description	Price
RHS43	Arbored hole saw 43 mm (1.68") for CN77R	$19
SPC116-S	Splash-proof cover for 1/16 DIN controllers	30
TP4	Trim plate adapter to install 1/16 DIN meter in existing ¼ DIN panel cutout	19
TP6	Trim plate adapter to install 1/16 DIN meter in existing ⅛ DIN panel cutout	19
CN77PC	Programming cradle	75

†SSR/solid state relay option: CE approval pending.

P

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