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Find the *OMEGA CNi833-C24* at our website: *Click HERE*

# i-Series 1/32, 1/16, 1/8 DIN Programmable Temperature/Process Controllers with RS-232 & RS-485 Communications.

**CNi Series Family**



**€242.00** CNi3222

- 3-Colour, 4-Digit Displays
- User Friendly, Simple to Configure
- High Quality! 5-Year Warranty Std.
- Selectable Full Autotune PID Control
- High Accuracy: ±0.5°C, 0.03% Reading
- Built-in 24 Vdc Excitation, Standard on units without DC power or communication options
- IP65 (NEMA 4) Front Panel
- Temperature Stability ±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C
- 2 Outputs: Control, Alarm, or Retransmission of Process Variable.
- Universal Inputs: Thermocouple, RTD, Process Voltage/Current

**Regulátory - teplotní, procesní, silová spínací zažízení - View related products**

## Description

***For our newest range of meters and controllers with Modbus connectivity, expanded ramp and soak programs, universal inputs, and simple PC set-up, visit our Platinum Series.***

The OMEGA™ iSeries is a family of microprocessor-based instruments offered in three true DIN sizes with NEMA 4 (IP65) rated front bezels. All of the instruments share the same set-up and configuration menu and method of operation, a tremendous time saver for integration of a large system. The iSeries family includes extremely accurate digital panel meters "DPi" and single loop PID controllers "CNi" that are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

The CNi Series covers a broad selection of transducer and transmitter inputs with 2 input models.

The universal temperature and process instrument (CNi models) handles 10 common types of thermocouples, multiple RTDs and several process (DC) voltage and current ranges. This model also features built-in excitation, 24 Vdc @ 25 mA. With its wide choice of signal inputs, this model is an excellent choice for measuring or controlling temperature with a thermocouple, RTD, or 4 to 20 mA transmitter.

The strain and process instruments (CNiS models) measure inputs from load cells, pressure transducers, and most any strain gage sensor as well as process voltage and current ranges.

The CNiS has built-in 5 or 10 Vdc excitation for bridge transducers, 5 Vdc @ 40 mA or 10 Vdc @ 60 mA (any excitation voltage between 5 and 24 Vdc is available by special order). This CNiS model supports 4- and 6-wire bridge communications, ratiometric measurements. The CNiS features fast and easy "in process" calibration/ scaling of the signal inputs to any engineering units. This model also features 10-point linearization which allows the user to linearize the signal input from extremely nonlinear transducers of all kinds.

**Programmable colour Display**
The iSeries are 1/8, 1/16 and 1/32 DIN controllers featuring the big iSeries colour-changing display. The digits are twice the size of typical 1/8 DIN panel meters. The iSeries meters feature the only LED displays that can be programmed to change colour between **GREEN**, **AMBER**, and **RED**.

**Embedded Internet and Serial Communications**
Featuring optional "embedded Internet" (specify "-EIT" option) the iSeries are the first instruments of their kind that connect directly to an Ethernet network and transmit data in standard TCP/ IP packets, or even serve Web pages over a LAN or the Internet. The iSeries are also available with serial communications. With the "-C24" option, the user can select from the pushbutton menu between RS232, RS422, and RS485, with straightforward ASCII commands or MODBUS.

## SPECIFICATIONS

**Universal Temperature and Process Input (DPi/CNi Models)**
**Accuracy:** ±0.5°C temp; 0.03% rdg
**Resolution:** 1°/0.1° 10 µV process
**Temperature Stability:**
- **RTD:** 0.04°C/°C
- **TC @ 25°C (77°F):** 0.05°C/°C
- **Cold Junction Compensation**
- **Process:** 50 ppm/°C

**NMRR:** 60 dB
**CMRR:** 120 dB
**A/D Conversion:** Dual slope
**Reading Rate:** 3 samples/s
**Digital Filter:** Programmable
**Display:** 4-digit 9-segment LED 10.2 mm; DPi/CNi32, DPi/CNi16, DPi/CNi16D, DPi/CNi8DV 21 mm; DPi/CNi8 10.2 mm and 21 mm; DPi/CNi8DH **RED**, **GREEN**, and **AMBER** programmable colours for process variable, setpoint and temperature units
**Input Types:** Thermocouple, RTD, analogue voltage, analogue current
**Thermocouple Lead Resistance:** 100 Ω max
**Thermocouple Types (ITS 90):** J, K, T, E, R, S, B, C, N, L (J DIN)
**RTD Input (ITS 68):** 100/500/1000 Ω Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve
**Voltage Input:** 0 to 100 mV, 0 to 1V, 0 to 10 Vdc
**Input Impedance:** 10 MΩ for 100 mV 1 MΩ for 1 or 10 Vdc
**Current Input:** 0 to 20 mA (5 Ω load)
**Configuration:** Single-ended
**Polarity:** Unipolar
**Step Response:** 0.7 sec for 99.9%
**Decimal Selection:**
- **Temperature:** None, 0.1
- **Process:** None, 0.1, 0.01 or 0.001

**Setpoint Adjustment:** -1999 to 9999 counts
**Span Adjustment:** 0.001 to 9999 counts
**Offset Adjustment:** -1999 to 9999
**Excitation (Not Included with Communication):** 24 Vdc @ 25 mA (not available for low-power option)

**Universal Strain and Process Input (DPiS/CNiS Models)**
**Accuracy:** 0.03% reading
**Resolution:** 10/1µV
**Temperature Stability:** 50 ppm/°C
**NMRR:** 60 dB

**CMRR:** 120 dB
**A/D Conversion:** Dual slope
**Reading Rate:** 3 samples/s
**Digital Filter:** Programmable
**Input Types:** analogue voltage and current
**Voltage Input:** 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc
**Input Impedance:** 10 MΩ for 100 mV; 1 MΩ for 1V or 10 Vdc
**Current Input:** 0 to 20 mA (5 Ω load)
**Linearization Points:** Up to 10
**Configuration:** Single-ended
**Polarity:** Unipolar
**Step Response:** 0.7 sec for 99.9%
**Decimal Selection:** None, 0.1, 0.01 or 0.001
**Setpoint Adjustment:** -1999 to 9999 counts
**Span Adjustment:** 0.001 to 9999 counts
**Offset Adjustment:** -1999 to 9999
**Excitation (Optional In Place Of Communication):** 5 Vdc @ 40 mA; 10 Vdc @ 60 mA

**Control**
**Action:** Reverse (heat) or direct (cool)
**Modes:** Time and amplitude proportional control; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative and anti-reset Windup, and on/off
**Rate:** 0 to 399.9 s
**Reset:** 0 to 3999 s
**Cycle Time:** 1 to 199 s; set to 0 for on/off
**Gain:** 0.5 to 100% of span; setpoints 1 or 2
**Damping:** 0000 to 0008
**Soak:** 00.00 to 99.59 (HH:MM), or OFF
**Ramp to Setpoint:**
**00.00 to 99.59 (HH:**MM), or OFF
**Auto Tune:** Operator initiated from front panel

**Control Output 1 and 2**
**Relay:** 250 Vac or 30 Vdc @ 3 A (resistive load); configurable for on/off, PID and ramp and soak
**Output 1:** SPDT, can be configured as alarm 1 output
**Output 2:** SPDT, can be configured as alarm 2 output
**SSR:** 20 to 265 Vac @ 0.05 to 0.5 A (resistive load); continuous
**DC Pulse:** Non-isolated; 10 Vdc @ 20 mA
**analogue Output (Output 1 Only):** Non-isolated, proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max
**Output 3 Retransmission**
**Isolated analogue Voltage and Current**
**Current:** 10 V max @ 20 mA output
**Voltage:** 20 mA max for 0 to 10 V output

**Network and Communications**
**Ethernet:** Standards compliance IEEE 802.3 10 Base-T
**Supported Protocols:** TCP/IP, ARP
**RS232/RS422/RS485:** Selectable from menu; both ASCII and Modbus protocol selectable from menu; programmable 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

**Alarm 1 and 2 (Programmable)**
**Type:** Same as output 1 and 2
**Operation:** High/low, above/below, band, latch/unlatch, normally open/ normally closed and process/deviation; front panel configurations
**analogue Output (Programmable):** Non-isolated, retransmission 0 to 10 Vdc or 0 to 20 mA, 500 Ω max (output 1 only); accuracy is ±1% of FS when following conditions are satisfied: input is not scaled below 1% of input FS, analogue output is not scaled below 3% of output FS

**General**
**Power:** 90 to 240 Vac ±10%, 50 to 400 Hz*, 110 to 375 Vdc, equivalent voltage
**Low Voltage Power Option:** 24 Vac**, 12 to 36 Vdc for DPi/CNi/DPiS/CNiS; 20 to 36 Vdc for dual display, ethernet, and isolated analogue output from qualified safety approved source

**Isolation**
**Power to Input/Output:** 2300 Vac per 1 minute test
**For Low Voltage Power Option:** 1500 Vac per 1 minute test
**Power to Relay/SSR Output:** 2300 Vac per 1 minute test
**Relay/SSR to Relay/SSR Output:** 2300 Vac per 1 minute test
**RS232/485 to Input/Output:** 500 Vac per 1 minute test
**Environmental Conditions:**
**All Models:** 0 to 55°C (32 to 131°F) 90% RH non-condensing
**Dual Display Models:** 0 to 50°C (32 to 122°F), 90% RH non-condensing (for UL only)
**Protection:**
**DPi/CNi/DPiS/CNiS32, 16, 16D, 8C:** NEMA 4X/Type 4 (IP65) front bezel
**DPi/CNi8, 8DH, 8DV:** NEMA 1/Type 1 front bezel
**Approvals:** UL, C-UL, CE per EN61010- 1:2001
**Dimensions**
**DPi/CNi8 Series:** 48 H x 96 W x 127 mm D (1.89 x 3.78 x 5")
**DPi/CNi16 Series:** 48 H x 48 W x 127 mm D (1.89 x 1.89 x 5")
**DPi/CNi32 Series:** 25.4 H x 48 W x 127 mm D (1.0 x 1.89 x 5")
**Panel Cutout**
**DPi/CNi8 Series:** 45 H x 92 mm W (1.772 x 3.622"), 1.8 DIN
**DPi/CNi16 Series:** 45 mm (1.772") square, 1.16 DIN
**DPi/CNi32 Series:** 22.5 H x 45 mm W (0.886 x 1.772"), 1.32 DIN
**Weight**
**DPi/CNi8 Series:** 295 g (0.65 lb)
**DPi/CNi16 Series:** 159 g (0.35 lb)
**DPi/CNi32 Series:** 127 g (0.28 lb)
** No CE compliance above 60 Hz.*
*** Units can be powered safely with 24 Vac power, but no certification for CE/UL are claimed.*

**THERMOCOUPLE CHART**

| Universal Temperature / Process | | | |
|---|---|---|---|
| **Input Type** | | **Range** | **Accuracy** |
| 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 |
| Excitation | | 24 V @ 25 mA | |
| **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<br>-454 to -256°F / -256 to 2502°F | 1.0°C / 0.4°C<br>1.8°F / 0.7°F |
| **T** | Copper-Constantan | -270 to -190°C / -190 to 400°C<br>-454 to -310°F / -310 to 752°F | 1.0°C / 0.4°C<br>1.8°F / 0.7°F |
| **E** | CHROMEGA™-Constantan | -270 to -220°C / -220 to 1000°C<br>-454 to -364°F / -364 to 1832°F | 1.0°C / 0.4°C<br>1.8°F / 0.7°F |
| **R** | Pt/13%Rh-Pt | -50 to 40°C / 40 to 1768°C<br>-58 to 104°F / 104 to 3214°F | 1.0°C / 0.5°C<br>1.8°F / 0.9°F |
| **S** | Pt/10%Rh-Pt | -50 to 100°C / 100 to 1768°C<br>-58 to 212°F / 212 to 3214°F | 1.0°C / 0.5°C<br>1.8°F / 0.9°F |
| **B** | 30%Rh-Pt/6%Rh-Pt | 100 to 640°C / 640 to 1820°C<br>212 to 1184°F / 1184 to 3308°F | 1.0°C / 0.5°C<br>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°F |
| **N** | Nicrosil-Nisil | -250 to -100°C / -100 to 1300°C<br>-418 to -148°F / -148 to 2372°F | 1.0°C / 0.4°C<br>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, 100, 500, 1000 ohm | -200 to 900°C / -328 to 1652°F | 0.4°C / 0.7°F |
| **RTD** | Pt, 0.00392, 100, 500, 1000 ohm | -200 to 850°C / -328 to 1562°F | 0.4°C / 0.7°F |

**All dollar amounts on this site are shown in Euro currency.**

***Note:*** Refer to the Related Links for CNi32, CNi16 and CNi8 for complete specifications.

***Ordering Example:*** (1) **CNI3222-C24** 1/32 DIN PID Controller with two solid state relays for PID control and serial communications, both RS-232 and RS-485, **€317.00**

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# Part Number Builder

Build Your Part Number Below

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| CNi8 | 3 | 3 | -C24 | | | |

**Qty:** 1 **Price: €390.00** (Availability-4 weeks)

### Option Descriptions:

**(1) Temperature/Process Controllers** *select from:*
**CNi32** for Two control outputs 1/32 DIN
**CNi16** for Two control outputs 1/16 DIN
**CNi16D** for Two control outputs with dual display 1/16 DIN
**CNi8** for Two control outputs 1/8 DIN
**CNi8A** for Two control outputs w/Isolated Analogue Retransmission

**(2) Control Outputs #1** *select from:*
**2** for Solid State Relay/0.5 A at 120/240 Vac continuous
**3** for SPDT Relay
**4** for Pulsed 10 Vdc at 20 mA
**5** for Analogue Output 0 to 10 Vdc or 0 to 20mA

**(3) Control Outputs #2** *select from:*
**2** for Solid State Relay/0.5 A at 120/240 Vac continuous
**3** for Relay SPDT 3A at 120/3 A at 240 Vac
**4** for Pulsed Driver 10 Vdc at 20 mA /for use with external SSR

**(4) Network Options** *select from:*
***Nothing(leave field blank)*** for No Network Options
**-EIT** for Ethernet with Embedded Internet (not available on 1/32DIN Controller)
**-C24** for Isolated RS-232 and RS-485 300 to 19.2 k baud
**-C4EIT** for Ethernet with Embedded Web Server + Isolated RS-485/422 hub for up to 31 devices(not available on 1/32DIN Controller)

**(5) Power Supply** *select from:*
***Nothing(leave field blank)*** for Standard Power (90 to 240 Vac/dc @ 50 to 400 Hz)
**-DC** for Low Voltage Power (10 to 34 Vac/dc)

**(6) Limit Alarm Version(Simplified Menu -No PID Control)** *select from:*
***Nothing(leave field blank)*** for PID control - no limit alarm(standard)
**-AL** for Limit Alarm Version

**(7) Factory Setup** *select from:*
***Nothing(leave field blank)*** for Standard Unit
**-FS** for Factory Setup and Configuration (requires -C24 Serial Communications Option)Contact Sales with configuration requirements

**Note:** All combinations may not be valid, check spec sheet for valid part numbers.

## Software:

Download iSeries ActiveX Control

Download iSeries Configuration Software

Download iServer Software-Mail Notifier and Utilities

## Related Products:



**DPi32, DPi16, DPi8 Series**

*i-Series 1/32, 1/16, 1/8 DIN Temperature/Process Meters*



**CNi8 Series**

*i-Series 1/8 DIN Programmable Temperature/Process Controllers with RS-232 & RS-485 Communications.*



**CNi32 Series**

*Temperature, Process and Strain PID Controllers*



## CNi16 Series

*i-Series 1/16 DIN Programmable Temperature/Process Controllers with RS-232 & RS-485 Communications.*

JAKAR Electronics, spol. s r.o.

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