

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

**Visit our website - *Click HERE***

# 1/32 DIN Temperature, Process and Strain PID Controllers

# iSeries

**i32 Series**




**i3233 shown smaller than actual size.**

- **High Accuracy: ±0.03% Reading, 0.5°C (±0.9°F)**
- **Totally Programmable Color Displays**
- **User-Friendly, Simple to Configure**
- **Free Software**
- **Full Autotune PID Control**
- **Universal Inputs: Thermocouple RTD, Process Voltage/ Current, Strain**
- **RS232 and RS485 Serial Communications (Optional)**
- **Built-in Excitation**
- **Temperature Stability ±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C (77°F)**
- **NEMA 4 (IP65) Front Bezel**
- **2 Control or Alarm Outputs Optional: DC Pulse, Solid State Relays, Mechanical Relays, Analog Voltage and Current**
- **Front Removable and Plug Connectors**

The NEWPORT® i32 is the iSeries controller in the extremely compact and increasingly popular 1/32 DIN size (22.5 x 45 mm cutout). The i32 is the most sophisticated and accurate instrument available in the small 1/32 DIN package, yet is still easy to configure.

The i32 handles more thermocouple, RTD, process voltage and current inputs than any other 1/32 DIN controller.

The i32 is the first 1/32 DIN controller with built-in excitation for transmitters or other devices, 24 Vdc @ 25 mA.

The iS32 has built-in excitation for bridge transducers, 5 Vdc @ 40 mA or 10 Vdc @ 60 mA. When communications options are installed, external excitation may be used and ratiometric operation maintained by connecting the external excitation to the sense leads. Both 4- or 6-wire bridge configurations are supported for internal or external excitation. Non-ratiometric operation is supported for voltage and current transducers and is also valuable in measuring offset and millivolt output of bridge devices during manufacturing and calibration. This model also features 10-point linearization which allows the user to linearize the signal input from extremely nonlinear transducers of all kinds.

The i32 introduces a number of unique features not yet found on any other 1/32 DIN instrument. The i32 is the first 1/32 DIN controller with a totally programmable display that can change color between **GREEN**, **AMBER**, or **RED** at any setpoint or alarm point. The unique 9-segment LED characters greatly improves alphanumeric representations.

The i32 is the first 1/32 DIN controller offering 2 SPDT Form C relays, instead of the single throw relays on typical 1/32 DIN controllers.

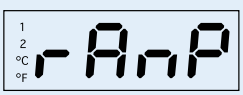
The i32 is the first to offer both RS232 and RS422/485 serial communications in 1 instrument (C24 option). Both ASCII protocol and modbus protocol are selectable from the menu.

The **iSeries** displays feature unique 9-segment LED characters, which greatly improves alphanumeric representations. The 7-segment LED characters found on most instruments are adequate for presenting numbers, but not letters.

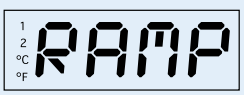



**9-segment LED**

Words are easier to read with the unique 9-segment LED characters on the **iSeries**, which makes operating and programming simpler and easier.




7-segment display

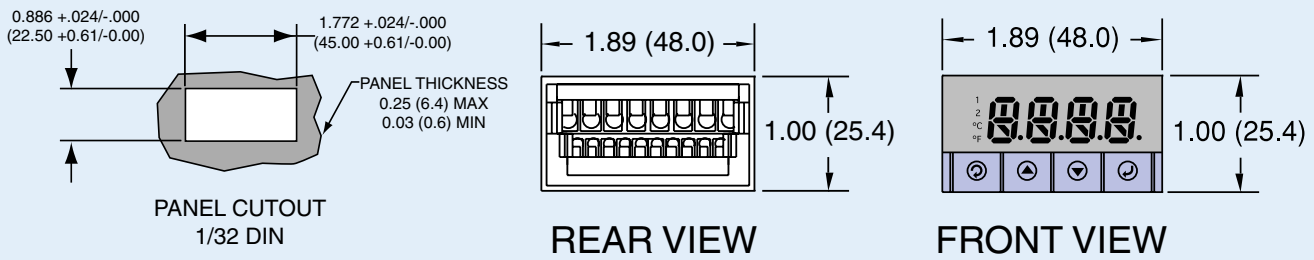



9-segment display




**i3233 shown smaller than actual size.**

**i3244 shown smaller than actual size.**




**Dimensions: in (mm)**

## Options

| Ordering Suffix | Description |
|---|---|
| **-AL** | Limit alarm version (alarms only, no PID control)*2 |
| **-SM** | Simplified menu (on/off control or alarms, no PID)*3 |
| **Networks Options** | |
| **-C24** | Isolated RS232 and RS485/422, 300 to 19.2 Kb*1 |
| **Power Supply** | |
| **-DC** | 12 to 36 Vdc, 24 Vac*1 |
| **Factory Setup** | |
| **,FS** | Factory setup and configuration |
| **,FS(RTD-1N)** | Customized "iS" Model for MIL-T-7990B nickel RTD input, 0 to 200°C (32 to 392°F) |
| **,FS(RTD-2N)** | Customized "iS" Model for MIL-T-7990B nickel RTD input, -40 to 300°C (-40 to 572°F) |
| **Software (Requires Network Option)** | |
| **OPC-SERVER LICENSE** | OPC server/driver software license |

** 1 Excitation not available with "**-DC**" or "**-C24**" option.*

** 2 "**-AL**" option not available on models with analog (option 5) output.*

** 3 "**-SM**" option not available on **iS** strain/process input models.*

## To Order *Visit newportUS.com/i32 for Pricing and Details*

| Model No. | Output 1 | Output 2 |
|---|---|---|
| **Temperature/Pressure Input** | | |
| **i3222** | 0.5 A SSR | 0.5 A SSR |
| **i3223** | 0.5 A SSR | Relay |
| **i3224** | 0.5 A SSR | DC pulse |
| **i3233** | Relay | Relay |
| **i3242** | DC pulse | 0.5 A SSR |
| **i3243** | DC pulse | Relay |
| **i3244** | DC pulse | DC pulse |
| **i3252** | Analog | 0.5 A SSR |
| **i3253** | Analog | Relay |
| **i3254** | Analog | DC pulse |
| **Strain/Process Input** | | |
| **iS3222** | 0.5 A SSR | 0.5 A SSR |
| **iS3223** | 0.5 A SSR | Relay |
| **iS3224** | 0.5 A SSR | DC pulse |
| **iS3233** | Relay | Relay |
| **iS3234** | Relay | DC pulse |
| **iS3242** | DC pulse | 0.5 A SSR |
| **iS3243** | DC pulse | Relay |
| **iS3244** | DC pulse | DC pulse |
| **iS3252** | Analog | 0.5 A SSR |
| **iS3253** | Analog | Relay |
| **iS3254** | Analog | DC pulse |

## Accesories

| Model No. | Description |
|---|---|
| **DPP-1** | 1/32 DIN panel punch |
| **EIT-W-485** | Industrial iServer Microserver™, serves 32 devices |

*Comes with complete operator's manual.*

***Ordering Examples: i3222-C24,** 1/32 DIN PID controller with 2 solid-state relays for PID control and serial communications, both RS232 and RS485.*

***iS3222-AL,** 1/32 DIN strain/process controller, limit alarm version with SSR output.*

# iSeries Common Specifications (All i/8, i/16, i/32 DIN)

## Universal Temperature and Process Input ("i" 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 (0.40"); i32, i16, i16D, i8DV 21 mm (0.83"); i8 10.2 mm (0.40") and 21 mm (0.83"); i8DH **RED**, **GREEN**, and **AMBER** programmable colors for process variable, setpoint and temperature units

**Input Types:** Thermocouple, RTD, analog voltage, analog 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 ("iS" 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:** Analog 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

**Analog Output (Output 1 Only):** Non-isolated, proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max

**Output 3 Retransmission:**
- **Isolated Analog 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, HTTPGET

**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

**Analog 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, analog output is not scaled below 3% of output FS

## General

**Power:** 90 to 240 Vac ±10%, 50 to 400Hz*, 110 to 375 Vdc, equivalent voltage

**Low Voltage Power Option:** 24 Vac**, 12 to 36 Vdc for i/iS; 20 to 36 Vdc for dual display, ethernet, and isolated analog 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:**
- **i/iS32, 16, 16D, 8C:** NEMA 4X/Type 4 (IP65) front bezel
- **i/iS8, 8DH, 8DV:** NEMA 1/Type 1 front bezel
- **Approvals:** UL, C-UL, CE per EN61010- 1:2001, FM (temperature units only)

**Dimensions**
- **i/8 Series:** 48 H x 96 W x 127 mm D (1.89 x 3.78 x 5")
- **i/16 Series:** 48 H x 48 W x 127 mm D (1.89 x 1.89 x 5")
- **i/32 Series:** 25.4 H x 48 W x 127 mm D (1.0 x 1.89 x 5")

**Panel Cutout**
- **i/8 Series:** 45 H x 92 mm W (1.772 x 3.622"), ⅛ DIN
- **i/16 Series:** 45 mm (1.772") square, ¼ DIN
- **i/32 Series:** 22.5 H x 45 mm W (0.886 x 1.772"), 1/32 DIN

**Weight**
- **i/8 Series:** 295 g (0.65 lb)
- **i/16 Series:** 159 g (0.35 lb)
- **i/32 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.*

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP