⅛ DIN Ultra Compact Case, Temperature, Process and Strain PID Controllers

iSeries

i8C Series

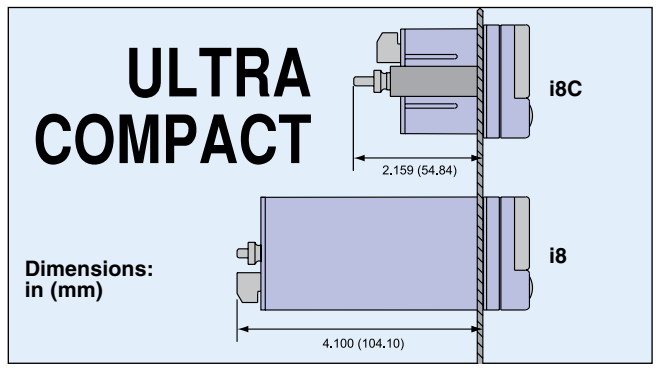
5 YEAR WARRANTY

FM APPROVED For Temp. Units

i8C33 shown smaller than actual size.

- **Ultra Compact ⅛ DIN Controller**
- **Full Autotune PID Control**
- **Built-In Excitation**
- **NEMA 4 (IP65) Bezel**
- **RS232, RS422/485 or Modbus Communication, Menu Selectable**

The ultra-compact i8C and iS8C controllers are similar to the full size i8 in an ultra-compact enclosure. Only 51 mm (2") behind the panel.



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	
	Standard power input: 90 to 240 Vac/dc, 50 to 400 Hz (no entry required)
-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 "-DC**" and "**-C24**" not available with excitation*
2 Analog output is not available with "-AL**" units.*
3 "-SM**" option not available on **iS** strain models.*

To Order *Visit newportUS.com/i8_short for Pricing and Details*

Model No.	Output 1	Output 2
⅛ DIN Compact Case with 2 Control Outputs		
i8C33	Relay	Relay
i8C34	Relay	DC pulse
i8C44	DC pulse	DC pulse
i8C22	0.5 A SSR	0.5 A SSR
i8C23	0.5 A SSR	Relay
i8C24	0.5 A SSR	DC pulse
i8C53	Analog	Relay
i8C54	Analog	DC pulse
i8C52	Analog	0.5 A SSR
⅛ DIN Compact Case Strain/Process Input with 2 Control Outputs		
iS8C33	Relay	Relay
iS8C44	DC pulse	DC pulse
iS8C43	DC pulse	Relay
iS8C42	DC pulse	0.5 A SSR
iS8C22	0.5 A SSR	0.5 A SSR
iS8C23	0.5 A SSR	Relay
iS8C24	0.5 A SSR	DC pulse
iS8C53	Analog	Relay
iS8C54	Analog	DC pulse
iS8C52	Analog	0.5 A SSR

Comes with complete operator's manual.
***Ordering Examples: i8C33,** ⅛ DIN compact universal temperature process controller with 2 relay outputs.*

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.*