⅛ DIN Dual Display, Temperature, Process and Strain PID Controllers

iSeries

i8D Series

5 YEAR WARRANTY | CE | c UL us LISTED | FM APPROVED For Temp. Units

i8DH33 shown smaller than actual size.

iS8DV33 shown smaller than actual size.

- **Embedded Ethernet Connectivity (Optional)**
- **Dual Display with Bright Color-Changing Feature**
- **Programmable Digital Filter**
- **2 Control or Alarm Outputs (Choice of DC Pulse, Solid State Relays, Mechanical Relays, Analog Voltage and Current)**
- **Full Autotune PID Control**
- **Built-In Excitation**
- **Front Removable**

The NEWPORT® i8DH and i8DV are high-quality, highly accurate single loop autotune PID temperature and process controllers for ⅛ DIN (92 x 45 mm) horizontal or vertical panel cutouts. Both devices feature the same state-of-the-art technology, uncompromising accuracy, and quality backed by an extended 5-year warranty.

The i8DH and i8DV are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

The i8DH and i8DV come standard with your choice of 2 control or alarm outputs in almost any combination: solid state relays rated at 0.5 A @ 120/240 Vac; Form "C" SPDT relays rated at 3 A @ 120/240 Vac; pulsed 10 Vdc output for use with an external SSR; or analog output (0 to 10 Vdc or 0 to 20 mA) selectable for control or retransmission of the process value.

The universal temperature and process instrument (i8 models) offer a selection of 10 thermocouple types as well as 2-, 3- or 4-wire RTDs, process voltage and current. The i8DH and i8DV are ideal controllers for use with transmitters and amplified transducers. Built-in excitation is standard (24 Vdc @ 25 mA). The units handle 0 to 20 mA process current and process voltage in 3 scales: 0 to 100 mV, 0 to 1V, and 0 to 10V.

As with all iSeries devices, the process value display can be programmed to change color between **GREEN**, **AMBER**, or **RED** at any setpoint or alarm point. The LEDs displaying the process value on the i8DH (horizontal ⅛ DIN) are the largest digits of any ⅛ DIN controller.

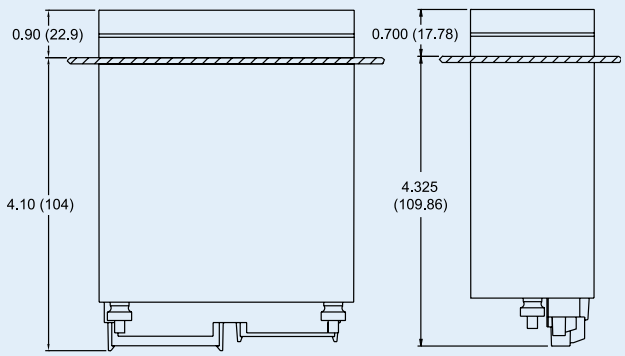
The strain/process instrument (model iS) meters and controllers measure inputs from load cells, pressure transducers, and most any strain gage sensor. Input ranges include 0 to 100 mVdc; -100 mVdc to 1 Vdc; 0 to 10 Vdc in addition to 0 to 20 mA. Excitation for transducers of 5 V and 10 V is standard.

The highly recommended networking and communications options include direct Ethernet LAN connectivity with an embedded Web server, and serial communications. The C24 serial communications option includes both RS232 and RS485 which can be selected from the menu as well as both a straightforward ASCII protocol or MODBUS®. The C4EIT option includes both Ethernet and RS485 ASCII/MODBUS on 1 device.

The iSeries, with the network options, are designed for easy integration with popular industrial automation and control programs as well as Microsoft Visual Basic and Excel. Newport® provides free configuration software which makes it fast and easy to get up and running with many applications. Available for download off the Internet.

The i/8 Series controllers feature plug/removable connectors and a sturdy panel mounting sleeve with adjustable thumb nuts for easy secure installation.

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	
-EIT	Ethernet with embedded Web server
-C24	Isolated RS232 and RS485/422, 300 to 19.2 Kb*1
-C4EIT	Ethernet with embedded Web server + isolated RS485/422 hub for up to 31 devices*1
Power Supply	
*	Standard power input: 90 to 240 Vac/dc, 50 to 400 Hz (no entry required)
-DC	20 to 36 Vdc, 24 Vac*1
Factory Setup	
,FS	Factory setup and configuration
Software (Requires Network Option)	
OPC-SERVER LICENSE	OPC server/driver software license

** 1"**-DC**", "**-C24**", and "**-C4EIT**" 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_dhorz for Pricing and Details*

Model No.	Output 1	Output 2
Dual Display Horizontal with 2 Control Outputs		
i8DH33	Relay	Relay
i8DH34	Relay	DC pulse
i8DH44	DC pulse	DC pulse
i8DH43	DC pulse	Relay
i8DH42	DC pulse	0.5 A SSR
i8DH22	0.5 A SSR	0.5 A SSR
i8DH23	0.5 A SSR	Relay
i8DH24	0.5 A SSR	DC pulse
i8DH53	Analog	Relay
i8DH54	Analog	DC pulse
i8DH52	Analog	0.5 A SSR
Dual Display Vertical with 2 Control Outputs		
i8DV33	Relay	Relay
i8DV34	Relay	DC pulse
i8DV44	DC pulse	DC pulse
i8DV43	DC pulse	Relay
i8DV42	DC pulse	0.5 A SSR
i8DV22	0.5 A SSR	0.5 A SSR
i8DV23	0.5 A SSR	Relay
i8DV24	0.5 A SSR	DC pulse
i8DV53	Analog	Relay
i8DV54	Analog	DC pulse
i8DV52	Analog	0.5 A SSR
Strain/Process Input, Dual Display Horizontal with 2 Control Outputs		
iS8DH33	Relay	Relay
iS8DH44	DC pulse	DC pulse
iS8DH43	DC pulse	Relay
iS8DH42	DC pulse	0.5 A SSR
iS8DH22	0.5 A SSR	0.5 A SSR
iS8DH23	0.5 A SSR	Relay
iS8DH24	0.5 A SSR	DC pulse
iS8DH53	Analog	Relay
iS8DH54	Analog	DC pulse
iS8DH52	Analog	0.5 A SSR
Strain/Process Input, Dual Display Vertical with 2 Control Outputs		
iS8DV33	Relay	Relay
iS8DV44	DC pulse	DC pulse
iS8DV43	DC pulse	Relay
iS8DV42	DC pulse	0.5 A SSR
iS8DV22	0.5 A SSR	0.5 A SSR
iS8DV23	0.5 A SSR	Relay
iS8DV24	0.5 A SSR	DC pulse
iS8DV53	Analog	Relay
iS8DV54	Analog	DC pulse
iS8DV52	Analog	0.5 A SSR

Comes with complete operator's manual.

***Ordering Examples: i8DH43,** horizontal ⅛ DIN dual display with pulse control and relay. **i8DV53**, ⅛ DIN dual display vertical controller with analogue output and relay. **iS8DH22**, ⅛ DIN dual display horizontal controller with 2 SSR 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.*