Economical Temperature/Process Controller with DeviceNet™ Communications Protocol

Watlow's SERIES SD6_D delivers excellent control, quality and application versatility in a ¹⁄₁₆ DIN panel mount package.

The SERIES SD6_D has been successfully tested for use with ODVA and Semiconductor SIG standards for DeviceNet™ on CAN networks.

The SERIES SD6_D controller includes a universal sensor input with two outputs that can be configured as heat, cool or alarm. The DeviceNet™ communications interface is supplied with either a five pin circular DIN connector for semiconductor SIG specific applications or a five position removable screw terminal connector for other market applications.

Additional features of the SERIES SD6_D family of controllers include Watlow's INFOSENSE™ sensor technology, a user definable menu system and a Save and Restore feature that allows users to restore factory as well as individually defined parameter values.

The SERIES SD6_D is available as a static set point and limit controller. Ramp soak profile versions will be available in the future. The controllers offer a three-year warranty, are UL® and C-UL® listed, CSA approved, CE certified and include the NEMA 4X (IP65) and NSF ratings. Limit versions of the controller have FM (factory mutual) approval.

Features and Benefits

DeviceNet™ communications capabilities
- Integrates with other DeviceNet™ nodes and software
- Users can select the DeviceNet™ implementation to meet their application needs
- Network and module status LEDs simplify commissioning and troubleshooting a network

INFOSENSE™ sensor technology
- Thermo-sensing technology improves sensor accuracy by a minimum of 50 percent

"Save and Restore" feature for user settings
- Allows the user or OEM to save and restore individual parameter settings
- Reduces downtime and trouble shooting costs due to programming errors

User defined menu system
- Allows the operator to view necessary information only
- Improves operational efficiency

Ramp to set point
- Controls temperature rise

Variable burst fire
- Prolongs heater life

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DeviceNet™ is a trademark of the Open DeviceNet Vendors Association

Specifications

Line Voltage/Power
- 100 to 240V∼(ac), +10/-15 percent; (85-264V∼(ac)) 50/60Hz, ±5 percent
- 24V≈(ac/dc), +10/-15 percent; 50/60Hz, ±5 percent
- 10VA maximum power consumption
- Data retention upon power failure via nonvolatile memory

Environment
- -18 to 65°C (0 to 149°F) operating temperature
- -40 to 85°C (-40 to 185°F) storage temperature
- 0 to 90 percent RH, non-condensing

Accuracy
- Calibration accuracy and sensor conformity: ±0.1 percent of span, ±1°C @ the calibrated ambient temperature and rated line voltage
- Calibration ambient temperature = 25°C ±3°C (77°F ±5°F)
- Accuracy span: 540°C (1000°F) minimum
- Temperature stability: ±0.1°C/°C (±0.2°F/°F) rise in ambient maximum

Agency Approvals
- UL® 3121, C-UL®, CE, NEMA 4X/IP65, NSF

Controller
- Microprocessor based user-selectable control modes
- Single universal input, up to two outputs
- Control sampling rates: input = 6.5Hz

Operator Interface
- Dual 4 digit, 7 segment LED displays
- Advance, infinity and up down keys

Wiring Termination -Touch Safe Terminals
- Input power and control outputs 12 to 22 AWG
- Sensor inputs and process outputs 20 to 28 AWG

DeviceNet™ Communications
- Network and Module Status LEDs
- DeviceNet™ Semi-Conductor SIG, 5 pin circular (Type M12) connector, discreet rotary switches for Address and Data rate selections
- DeviceNet ODVA Traditional Markets, 5 pin removable screw terminal connector with Address and Data Rate selections via embedded firmware parameters

Control Outputs
Outputs 1, 2
- User selectable for heat/cool as on-off, P, PI, PD, PID or alarm action.Not valid for limit controllers
- Electromechanical relay. Form A, rated 2A @ 120V∼(ac), 2A @ 240V∼(ac) or 2A @ 30V⎓(dc)
- Switched dc non-isolated minimum turn on voltage of 6V⎓(dc) into a minimum 500Ω load with a maximum on voltage of not greater than 12V⎓(dc) into an infinite load. Maximum switched dc power supply current available for up to two outputs is 60mA
- Solid-state relay, Form A, 0.5A @ 24V∼(ac) minimum, 264V∼(ac) maximum, opto-isolated, without contact suppression
- Process output (Non Isolated) User-selectable 0-10V⎓(dc), 0-5V⎓(dc), 1-5V⎓(dc) @1KΩ minimum, 0-20mA, 4-20mA @ 800Ω maximum
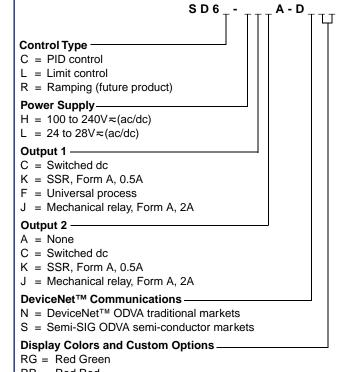
Universal Input
- Thermocouple, grounded or ungrounded sensors
- RTD 2- or 3-wire, platinum, 100Ω @ 0°C calibration to DIN curve (0.00385 Ω/Ω/°C)
- Process, 0-20mA @ 100Ω, or 0-10V⎓(dc) @ 20kΩ input impedance; Scalable
- Inverse scaling
- >20MΩ input impedance
- Maximum of 20Ω source resistance

Allowable Operating Range

Type J:	0	to	815°C	or	32 to	1500°F
Type K:	-200	to	1370°C	or	-328 to	2500°F
Type T:	-200	to	400°C	or	-328 to	750°F
Type N:	0	to	1300°C	or	32 to	2372°F
Type E:	-200	to	800°C	or	-328 to	1470°F
Type C:	0	to	2315°C	or	32 to	4200°F
Type D:	0	to	2315°C	or	32 to	4200°F
Type PTII:	0	to	1395°C	or	32 to	2543°F
Type R:	0	to	1760°C	or	32 to	3200°F
Type S:	0	to	1760°C	or	32 to	3200°F
Type B:	0	to	1816°C	or	32 to	3300°F
RTD (DIN):	-200	to	800°C	or	-328 to	1472°F
Process:	-1999 to 9999 units					

Ordering Information

To order, complete the model number on the right with the information below.

                                    S D 6 -   A - D

Control Type
C = PID control
L = Limit control
R = Ramping (future product)

Power Supply
H = 100 to 240V≈(ac/dc)
L = 24 to 28V≈(ac/dc)

Output 1
C = Switched dc
K = SSR, Form A, 0.5A
F = Universal process
J = Mechanical relay, Form A, 2A

Output 2
A = None
C = Switched dc
K = SSR, Form A, 0.5A
J = Mechanical relay, Form A, 2A

DeviceNet™ Communications
N = DeviceNet™ ODVA traditional markets
S = Semi-SIG ODVA semi-conductor markets

Display Colors and Custom Options
RG = Red Green
RR = Red Red
XX = Custom options, special overlays, etc.