



SZ2165

Boiler Controller



Description

The SZ2165 is a microprocessor based boiler controller. It is designed for use on multi-stage boiler applications and includes chiller support and control.

The SZ2165 features:

- Stand-alone or network operation
- 365-day time clock with two holiday schedules, automatic leap year and daylight savings correction
- No backup battery required for control parameters, schedule or clock
- Hot water supply and return temperature inputs
- Chilled water supply and return temperature inputs
- Two digital outputs for chillers
- One digital output for alarm
- Mixed water temperature input
- Outdoor air temperature input
- Outdoor air reset control
- Two digital inputs for pump status
- External time clock input
- Local override and remote override capability
- Six digital outputs for boilers, pumps and boiler stages
- Adjustable offsets and differentials on digital outputs
- Lead/Lag sequencing of up to four boilers
- Analog input for pressure control
- Two modulating analog outputs for valves and VFDs
- Adjustable P+I+D control on modulating outputs
- LEDs for monitoring status
- Automatic rotation of pumps
- Automatic rotation of boiler and chiller stages
- Domestic hot water function
- Pump lube feature
- Selectable normally open or normally closed relay outputs

Specifications

General

Accuracy: +/- 0.5%

Programming: EIA RS485 interface

Communications: RS485, half duplex

Memory backup: Non-volatile EEPROM, no battery required

Environmental

Operating temperature: 32 to 131°F (0 to 55°C)

Operating humidity: 0 to 100% RH, non-condensing

Storage temperature: 14 to 140°F (-10 to 60°C)

Electrical

Supply voltage: 24 VAC +/-20%

Inputs: Six 1000 Ω PtRTD, momentary override, five digital (dry contact) and one 4 to 20 mA DC analog
Range: Hot water supply and return: 40 to 240°F
Chilled water supply and return: 0 to 100°F
Mixed water: 20 to 220°F
Outdoor air: -40 to 160°F

Outputs: Nine digital (SPST dry contact, 24 VAC @ 2 A) and Two 4 to 20 mA DC analog

Analog input impedance: 250 Ω

Max. load resistance (analog output): 600 Ω

Common mode rejection: 100 db @ 60 Hz

Power consumption: 15 VA max.

Specifications subject to change without notice.

Specification Suggestions

Boiler controllers shall be microprocessor based with suitable I/O points to execute the required sequences and shall be of the low voltage type.

Boiler controllers shall have 365-day time clock with vanishing holiday programming, two setback intervals per day and automatic leap year and daylight savings adjustment. Controllers shall accept six platinum RTD inputs for hot and chilled water supply and return temperatures, mixed water temperature and outdoor air temperature. Controllers shall have two analog outputs for valves and variable speed drive. Controller shall accept digital inputs for flow proving and analog input for pressure control. Other control options shall include fully adjustable reset control, automatic rotation of pumps and automatic rotation of boiler and chiller stages. Controllers shall have domestic hot water control and sequence for pump lubrication. Boiler controller shall have digital output for local alarm. Controller shall have option for normally open or normally closed relays, adjustable offsets and differentials on digital outputs and P+I+D control algorithm on modulating outputs. Controller must support non-volatile memory, so that in the event of power loss, all programmed operating parameters shall be unaffected without the use of battery backup. All control functions shall continue in the event of a communications failure.

Communications protocol shall be provided in accordance with EIA RS485 standards. All firmware communications protocol and command codes shall be published, open and non-proprietary. Boiler control modules shall be model SZ2165 as manufactured by TCS/Basys Controls.

Ordering Information

Part No.	Description
SZ2165	Boiler controller with chiller support

SZ2165 Accessories

TQ Series	Mounting accessories
TS Series	Platinum RTD temperature sensors
PS Series	Current switches
PT Series	Control transformers
QD1010	RS485 to RS232 communications converter (used for programming)
REVPRO	Revelation Professional software (used for programming)

Dimensions

Note: inches [mm]

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