

Conductivity, pH/ORP & Disinfection

OnGuard™ B600 Series Controllers

The OnGuard™ B600 series provides reliable, flexible and powerful control for your water treatment program.



Summary of Key Benefits

- Large touchscreen display with icon based programming makes setup easy
- Universal sensor input provides extraordinary flexibility; the same controller can be used with almost any type of sensor needed
- Combination Sensor Input and Analog Input board that add even more flexibility
- Lead/Lag control of up to 6 relays
- Optional dual analog (4-20 mA) input for Fluorometers or nearly any other process value
- Multiple language support allows simple setup no matter where your business takes you
- Six control outputs allow the controller to be used in more applications
- Economical wall-mount package for easy installation
- On-screen and web page graphing of sensor values and control output status
- Two Virtual Inputs that are calculated from two real inputs (cycles of concentration, % rejection, etc.)
- Complete flexibility in the function of each relay
 - On/Off Setpoint
 - Time Proportional Control
 - Pulse Proportional Control (when purchased with 4-20mA or pulse solid state opto outputs)
 - PID Control (when purchased with 4-20mA or pulse solid state opto outputs)
 - In-Range or Out-of-Range activation
 - Probe wash
 - Timer-based activation
 - Activation based upon the state of a contact closure
 - Timed activation triggered by a Water Contactor or Paddlewheel flow meter's accumulated total flow
 - Activate with another output
 - Activate as a percent of another output's on-time
 - Alarm
 - Spike Set Point
 - For Cooling Tower and Boiler applications:
 - Biocide Timer
 - Boiler blowdown on conductivity using intermittent sampling
- Datalogging
- Emailing Alarm messages, Datalog, Graph, or System Summary reports
- Ethernet option for remote access via the Internet, LAN or Modbus/TCP

Specifications

Inputs

Power

100-240 VAC, 50 or 60 Hz, 7A max Fuse: 6.3 Amp

Sensor Input Signals (0, 1 or 2 depending on model code)

Contacting Conductivity: 0.01, 0.1, 1.0, or 10.0 cell constant, or

Electrodeless Conductivity (not available on the combination sensor/analog input card) or

Disinfection or

Amplified pH, ORP, or Ion Selective Electrode which requires a preamplified signal. ± 5 VDC power available for external preamps. Walchem WEL or WDS series pH/ORP sensors recommended.

Each sensor input card contains a temperature input.

Temperature: 100 or 1000 ohm RTD, 10K or 100K Thermistor

Analog (4-20 mA) Sensor Input (0, 1, 2 or 4 depending on model code)

2-wire loop powered and self-powered transmitters supported

3-wire and 4-wire transmitters supported

Each dual sensor input board has two channels: Channel 1, 130 ohm input resistance and Channel 2, 280 ohm input resistance. The combination input board has one channel, 280 ohm input resistance.

Available Power: One independent isolated 24 VDC $\pm 15\%$ supply per channel. 1.5 W maximum for each channel.

2W (83 mA at 24 VDC) total power consumption for all channels (four total channels possible if two dual boards are installed; 2W is equivalent to 2 Little Dipper sensors)

Digital Input Signals (6):

State-Type Digital Inputs

Electrical: Optically isolated and providing an electrically isolated 9V power with a nominal 2.3mA current when the digital input switch is closed. Typical response time: < 2 seconds. Devices supported: Any isolated dry contact (i.e. relay, reed switch). Types: Interlock

Low Speed Counter-Type Digital Inputs

Electrical: Optically isolated and providing an electrically isolated 9V power with a nominal 2.3mA current when the digital input switch is closed, 0-10 Hz, 50 msec minimum width. Devices supported: Any device with isolated open drain, open collector, transistor or reed switch.

Types: Contacting Flowmeter

High Speed Counter-Type Digital Inputs

Electrical: Optically isolated and providing an electrically isolated 9V power with a nominal 2.3mA current when the digital input switch is closed, 0-500 Hz, 1.00 msec minimum width. Devices supported: Any device with isolated open drain, open collector, transistor or reed switch. Types: Paddlewheel Flowmeter

Outputs

Powered Mechanical Relays (0 or 6 model code dependent)

Pre-powered on circuit board switching line voltage

All relays are fused together as one group, total current must not exceed 6A (resistive), 1/8 HP (93W)

Dry Contact Mechanical Relays (0, 2 or 4 model code dependent)

6 A (resistive), 1/8 HP (93W)

Dry contact relays are not fuse protected.

Pulse Outputs (0, 2 or 4 model code dependent)

Opto-isolated, solid-state relay, 200mA, 40V DC

VLOWMAX = 0.05V @ 18mA

4 - 20 mA (0 or 2 model code dependent)

Internally powered, Fully isolated

600 Ohm max resistive load, Resolution 0.0015% of span

Accuracy $\pm 0.5\%$ of reading

Measurement Performance

| | Range | Resolution | Accuracy |
|-----------------------------------|------------------------------------|--|-----------------------------------|
| 0.01 Cell Contacting Conductivity | 0-300 $\mu\text{S/cm}$ | 0.01 $\mu\text{S/cm}$, 0.0001 mS/cm, 0.001 mS/m, 0.0001 S/m, 0.01 ppm | $\pm 1\%$ of reading |
| 0.1 Cell Contacting Conductivity | 0-3,000 $\mu\text{S/cm}$ | 0.1 $\mu\text{S/cm}$, 0.0001 mS/cm, 0.01 mS/m, 0.0001 S/m, 0.1 ppm | $\pm 1\%$ of reading |
| 1.0 Cell Contacting Conductivity | 0-30,000 $\mu\text{S/cm}$ | 1 $\mu\text{S/cm}$, 0.001 mS/cm, 0.1 mS/m, 0.0001 S/m, 1 ppm | $\pm 1\%$ of reading |
| 10.0 Cell Contacting Conductivity | 0-300,000 $\mu\text{S/cm}$ | 10 $\mu\text{S/cm}$, 0.01 mS/cm, 1 mS/m, 0.001 S/m, 10 ppm | $\pm 1\%$ of reading |
| pH | -2 to 16 pH units | 0.01 pH units | $\pm 0.01\%$ of reading |
| ORP/Ion Selective Electrode | -1500 to 1500 mV | 0.1 mV | ± 1 mV |
| Disinfection sensors | -2000 to 1500 mV | 0.1 mV | ± 1 mV |
| | 0 - 2 ppm to 0 - 20,000 ppm | Varies with range and slope | Varies with range and slope |
| Electrodeless Conductivity | 500 - 12,000 $\mu\text{S/cm}$ | 1 $\mu\text{S/cm}$, 0.01 mS/cm, 0.1 mS/m, 0.001 S/m, 1 ppm | $\pm 1\%$ of reading |
| | 3,000-40,000 $\mu\text{S/cm}$ | 1 $\mu\text{S/cm}$, 0.01 mS/cm, 0.1 mS/m, 0.001 S/m, 1 ppm | $\pm 1\%$ of reading |
| | 10,000-150,000 $\mu\text{S/cm}$ | 10 $\mu\text{S/cm}$, 0.1 mS/cm, 1 mS/m, 0.01 S/m, 10 ppm | $\pm 1\%$ of reading |
| | 50,000-500,000 $\mu\text{S/cm}$ | 10 $\mu\text{S/cm}$, 0.1 mS/cm, 1 mS/m, 0.01 S/m, 10 ppm | $\pm 1\%$ of reading |
| | 200,000-2,000,000 $\mu\text{S/cm}$ | 100 $\mu\text{S/cm}$, 0.1 mS/cm, 1 mS/m, 0.1 S/m, 100 ppm | $\pm 1\%$ of reading |
| Temperature | 23 to 500°F (-5 to 260°C) | 0.1°F (0.1°C) | $\pm 1\%$ of reading within range |

| Temperature°C | Range Multiplier% | Temperature°C | Range Multiplier% |
|---------------|-------------------|---------------|-------------------|
| 0 | 181.3 | 80 | 43.5 |
| 10 | 139.9 | 90 | 39.2 |
| 15 | 124.2 | 100 | 35.7 |
| 20 | 111.1 | 110 | 32.8 |
| 25 | 100.0 | 120 | 30.4 |
| 30 | 90.6 | 130 | 28.5 |
| 35 | 82.5 | 140 | 26.9 |
| 40 | 75.5 | 150 | 25.5 |
| 50 | 64.3 | 160 | 24.4 |
| 60 | 55.6 | 170 | 23.6 |
| 70 | 48.9 | 180 | 22.9 |

Note: Conductivity ranges above apply at 25°C. At higher temperatures, the range is reduced per the range multiplier chart.



Mechanical (Controller)

| | |
|----------------------------|---|
| Enclosure Material | Polycarbonate |
| Enclosure Rating | NEMA 4X (IP65) |
| Dimensions | 9.5 x 8 x 4" (241 x 203 x 102 mm) |
| Display | 320 x 240 pixel monochrome backlit display with touchscreen |
| Ambient Temperature | -4 to 131°F (-20 to 55°C) |
| Storage Temperature | -4 to 176°F (-20 to 80°C) |

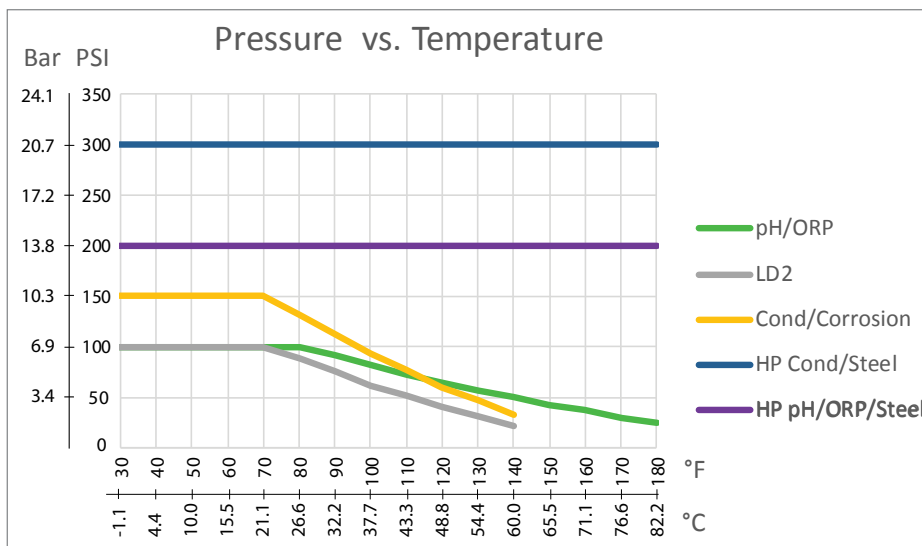
Agency Certifications

| | |
|----------------|---|
| Safety: | UL 61010-1:2012, 3rd Edition CSA C22.2 No.61010-1:2012, 3rd Edition IEC 61010-1:2010 3rd Edition EN 61010-1:2010 3rd Edition |
| EMC: | IEC 61326-1:2012 EN 61326-1:2013 |

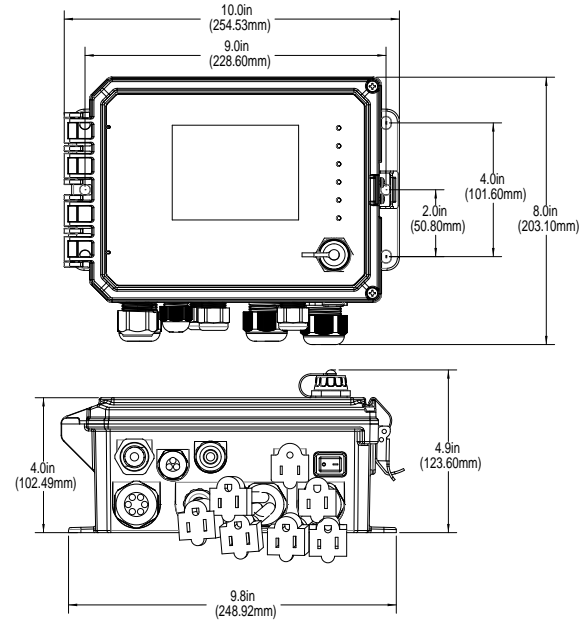
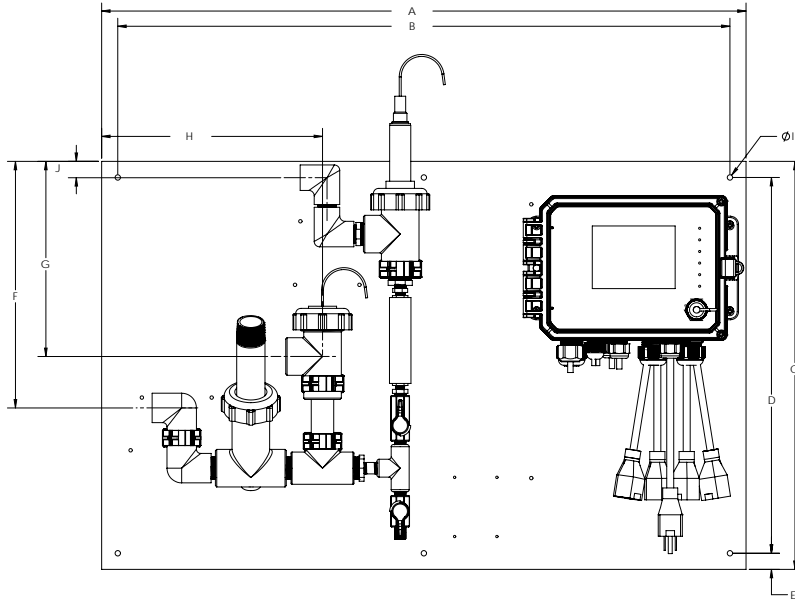
Note: For EN61000-4-6, EN61000-4-3 the controller met performance criteria B. This equipment is suitable for use in establishments other than domestic and those directly connected to a low voltage (100-240 VAC) power supply network which supplies buildings used for domestic purposes.

Mechanical (Sensors) (*see graph)

| Sensor | Pressure | Temperature | Materials | Process Connections |
|---|--|---|--|---|
| Electrodeless conductivity | 0-150 psi (0-10 bar)* | CPVC: 32-158°F (0 to 70°C)* PEEK: 32-190°F (0 to 88°C) | CPVC, FKM in-line o-ring PEEK, 316 SS in-line adapter | 1" NPTM submersion 2" NPTM in-line adapter |
| pH | 0-100 psi (0-7 bar)* | 50-158°F (10-70°C)* | CPVC, Glass, FKM | 1" NPTM submersion |
| ORP | 0-100 psi (0-7bar)* | 32-158°F (0-70°C)* | o-rings, HDPE, Titanium rod, glass-filled PP tee | 3/4" NPTF in-line tee |
| Contacting conductivity (Condensate) | 0-200 psi (0-14 bar) | 32-248°F (0-120°C) | 316SS, PEEK | 3/4" NPTM |
| Contacting conductivity Graphite (Cooling Tower) | 0-150 psi (0-10 bar)* | 32-158°F (0-70°C)* | Graphite, Glass-filled PP, FKM o-ring | 3/4" NPTM |
| Contacting conductivity SS (Cooling Tower) | 0-150 psi (0-10 bar)* | 32-158°F (0-70°C)* | 316SS, Glass-filled PP, FKM o-ring | 3/4" NPTM |
| Contacting conductivity (Boiler) | 0-250 psi (0-17 bar) | 32-401°F (0-205°C) | 316SS, PEEK | 3/4" NPTM |
| Contacting conductivity (High Pressure Tower) | 0-300 psi (0-21 bar)* | 32-158°F (0-70°C)* | 316SS, PEEK | 3/4" NPTM |
| pH (High Pressure) | 0-300 psi (0-21 bar)* | 32-275°F (0-135°C)* | Glass, Polymer, PTFE, 316SS, FKM | 1/2" NPTM gland |
| ORP (High Pressure) | 0-300 psi (0-21 bar)* | 32-275°F (0-135°C)* | Platinum, Polymer, PTFE, 316SS, FKM | 1/2" NPTM gland |
| Free Chlorine/Bromine | 0-14.7 psi (0-1 bar) | 32-113°F (0-45°C) | | |
| Extended pH Range Free Chlorine/Bromine | 0-14.7 psi (0-1 bar) | 32-113°F (0-45°C) | | |
| Total Chlorine | 0-14.7 psi (0-1 bar) | 32-113°F (0-45°C) | | |
| Chlorine Dioxide | 0-14.7 psi (0-1 bar) | 32-131°F (0-55°C) | PVC, Polycarbonate, silicone rubber, SS, PEEK, FKM, Isoplast | 1/4" NPTF Inlet 3/4" NPTF Outlet |
| Ozone | 0-14.7 psi (0-1 bar) | 32-131°F (0-55°C) | | |
| Peracetic Acid | 0-14.7 psi (0-1 bar) | 32-131°F (0-55°C) | | |
| Hydrogen Peroxide | 0-14.7 psi (0-1 bar) | 32-113°F (0-45°C) | | |
| Flow switch manifold | 0-150 psi (0-10 bar) up to 100°F (38°C)* 0-50 psi (0-3 bar) at 140°F (60°C) | 32-140°F (0-60°C)* | GFRPP, PVC, FKM, Isoplast | 3/4" NPTF |
| Flow switch manifold (High Pressure) | 0-300 psi (0-21 bar)* | 32-158°F (0-70°C)* | Carbon steel, Brass, 316SS, FKM | 3/4" NPTF |



Dimensions



Panel Mounted Flow Switch Manifold Dimensions

| W600 | A | B | C | D | E | F | G | H | I | J |
|---------------------------------|-------------------|-------------------|--------------------|--------------------|-------------------|--------------------|------------------|------------------|---------------------|------------------|
| Tolerances: | +/- 0.1" (2.5 mm) | | | | +/- 0.3" (8 mm) | | | | +/- 0.01" (0.25 mm) | +/- 0.3" (8 mm) |
| SO600-CT-BN/FN | 13" (330 mm) | 12" (305 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 7" (178 mm) | 2" (51 mm) | 1.5" (38 mm) | 0.25" (6.35 mm) | |
| SO600-CT-BA, BB, BC, FA, FB, FC | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 4" (102 mm) | 1.5" (38 mm) | 11" (279 mm) | | |
| SO600-CT-BD, FD, BK | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | .75" (19 mm) | 14" (356 mm) | 7" (178 mm) | 6.8" (173 mm) | | |
| SO600-CT-BQ, FQ, BU | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | .75" (19 mm) | 14" (356 mm) | 5" (127 mm) | 6.8" (173 mm) | | |
| SO600-CT-BH, BI, BJ, FH, FI, FJ | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | .75" (19 mm) | 10" (254 mm) | 5.5" (140 mm) | 8.5" (216 mm) | | |
| SO600-CT-BR, BS, BT, FR, FS, FT | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | .75" (19 mm) | 10" (254 mm) | 5" (127 mm) | 8.5" (216 mm) | | |
| SO600-CT-DN | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 7" (178 mm) | 7" (178 mm) | 10" (254 mm) | | |
| SO600-CT-DE/DF | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 4" (102 mm) | 2" (51 mm) | 110" (254 mm) | | |
| SO600-CT-HN | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 14" (356 mm) | 6" (152 mm) | 3" (76 mm) | | |
| SO600-CT-HA, HB, HC | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 11" (279 mm) | 6" (152 mm) | 3" (76 mm) | | |
| SO600-CT-HD, HK | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 14.75" (375 mm) | 8" (203 mm) | 6.5" (165 mm) | | |
| SO600-CT-HH, HI, HI | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 11.75" (298 mm) | 8" (203 mm) | 6.5" (165 mm) | | |
| SO600-CT-HQ, HU | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 14.75" (375 mm) | 6.5" (165 mm) | 6.5" (165 mm) | | |
| SO600-CT-HR, HS, HT | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 11.75" (278 mm) | 6.5" (165 mm) | 6.5" (165 mm) | | |
| SO600-PH-PN/PX | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 4" (102 mm) | 1.5" (38 mm) | 11" (279 mm) | | |
| SO600-PH-QN/QX | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 7" (178 mm) | 4" (102 mm) | 1.5" (38 mm) | | |
| SO600-DS-PN | 22.5" (571 mm) | 21.5" (546 mm) | 11.75" (298 mm) | 10.75" (273 mm) | 0.5" (12.7 mm) | 11" (279 mm) | 7.5" (191 mm) | 3" (76 mm) | | 0" (0 mm) |
| SO600-DS-PX | 24" (610 mm) | 22.5" (571 mm) | 19" (483 mm) | 17.5" (445 mm) | 0.75" (19 mm) | 11.5" (292 mm) | 9" (229 mm) | 10" (254 mm) | | 0.75" (19 mm) |

Ordering Information

**SOCT
SOBL
SOPH
SODS
SOCN**

RELAYS/WIRING

SOCT600P

INPUT CARDS

CS

ANALOG OUTPUTS

N

ETHERNET

E

SENSORS

- BI

Example: SOCT600PCSNE- BI

RELAYS/WIRING

| 6 powered relays | |
|------------------------|---|
| 600H | Hardwired |
| 600P | Prewired with USA cords and pigtails |
| 600D | Prewired with DIN power cord, no pigtails |
| 2 powered 4 dry relays | |
| 610H | Hardwired |
| 610P | Prewired with USA cord and 2 pigtails |
| 610D | Prewired with DIN power cord, no pigtails |
| 2 opto 4 dry relays | |
| 620H | Hardwired |
| 620P | Prewired with USA cord and two 20 ft. pulse cables |
| 620D | Prewired with DIN power cord, no pigtails |
| 4 opto 2 dry relays | |
| 640H | Hardwired |
| 640P | Prewired with USA cord and four 20 ft. pulse cables |
| 640D | Prewired with DIN power cord, no pigtails |

INPUT CARDS

| | |
|----|---|
| NN | No sensor input cards |
| SN | One sensor input card |
| SS | Two sensor input cards |
| CS | One sensor input card & one combination sensor/analog input card |
| CN | One combination sensor/analog input card |
| CA | One combination sensor/analog input card & one dual analog input card |
| CC | Two combination sensor/analog cards |
| AN | One dual analog input card |
| AA | Two dual analog input cards |
| SA | One sensor input card and one dual analog input card |

ANALOG OUTPUTS

| | |
|---|--------------------------------------|
| N | No analog outputs |
| A | One dual isolated analog output card |

ETHERNET

| | |
|---|-------------------------------|
| N | No Ethernet |
| E | Ethernet card |
| M | Ethernet card with Modbus/TCP |

SOBL BOILER SENSORS

| | Type of Input card required |
|----|--|
| NN | No sensor |
| AN | Boiler sensor with ATC, K=1.0, 250 psi, 20 ft. cable |
| BN | Boiler sensor without ATC, K=1.0, 250 psi, 20 ft. cable |
| CN | Condensate sensor with ATC, K=0.1, 200 psi, 10 ft. cable |
| DN | Boiler sensor with ATC, K=10, 250 psi, 20 ft. cable |
| AA | Two boiler sensors, with ATC, K=1.0, 250 psi, 20 ft. cables |
| BB | Two boiler sensor without ATC, K=1.0, 250 psi, 20 ft. cables |
| CC | Two condensate sensors with ATC, K=0.1, 200 psi, 10 ft. cables |
| DD | Two Boiler sensors with ATC, K=10, 250 psi, 20 ft. cables |
| AB | Boiler sensor with ATC, K=1.0 and boiler sensor without ATC, K=1.0, 250 psi, 20 ft. cables |
| AC | Boiler sensor with ATC, K=1.0 20 ft.cable and Condensate sensor with ATC, K=0.1, 250 psi, 10 ft. cable |
| AD | Boiler sensor with ATC, K=1.0 and Boiler sensor with ATC, K=10, 250 psi, 20 ft. cables |
| BC | Boiler sensor without ATC, 20 ft. and condensate sensor with ATC, 10 ft. cable |
| BD | Boiler sensor without ATC and Boiler sensor with ATC, K=10, 250 psi, 20 ft. cables |
| CD | Condensate sensor with ATC, 10 ft. cable and Boiler sensor with ATC, K=10, 250 psi, 20 ft. cable |

SODS DISINFECTION SENSORS

| | | |
|----|--|----------------|
| NN | No sensors or flow switch manifold | |
| PN | Single DIS manifold on panel* | S or C |
| PX | DIS manifold plus pH/ORP/cooling tower cond tee on panel** | SS or CS or CC |
| FN | Single DIS flow cell/cable, no sensor* | S or C |
| FF | Two DIS flow cell/cable, no sensors* | SS or CS or CC |

*Order disinfection sensor(s) separately

**Order disinfection sensor and WEL electrode and preamplifier housing or cooling tower conductivity sensor separately

SOCN CONDUCTIVITY SENSORS

| | | |
|----|-------------------------------------|-----------------------------------|
| NN | No sensors or flow switch manifold* | S or C for each sensor to be used |
|----|-------------------------------------|-----------------------------------|

*Order conductivity sensor separately

SOPH pH/ORP SENSORS

| | Type of Input card required |
|----|---|
| NN | No sensors or flow switch manifold |
| PN | Single low pressure manifold on panel** |
| QN | Single high pressure manifold on panel with 190783* |
| PX | Dual low pressure manifold on panel** |
| QX | Dual high pressure manifold on panel with two 190783* |

*Order 102029 pH and/or 102963 ORP electrodes separately

**Order WEL electrode(s) and preamplifier housing(s) separately

SOCT COOLING TOWER SENSORS

| | Type of Input card required |
|--|---|
| NN | No sensor |
| AN | Inline graphite contacting conductivity |
| BN | Graphite contacting conductivity + Flow Switch manifold on panel |
| CN | High pressure contacting conductivity |
| DN | High pressure contacting conductivity + Flow Switch manifold on panel |
| EN | Inline 316SS contacting conductivity |
| FN | 316SS contacting conductivity + Flow Switch manifold on panel |
| GN | Inline electrodeless conductivity |
| HN | Electrodeless conductivity + Flow Switch manifold on panel |
| Graphite contacting conductivity + Flow Switch manifold on panel | |
| BA | + Flat pH Cartridge no ATC |
| BB | + Rod ORP Cartridge no ATC |
| BC | + Flat ORP Cartridge no ATC |
| BD | + Little Dipper |
| BH | + Flat pH Cartridge no ATC + Little Dipper |
| BI | + Rod ORP Cartridge no ATC + Little Dipper |
| BJ | + Flat ORP Cartridge no ATC + Little Dipper |
| BK | + Little Dipper with Makeup graphite conductivity with threaded adapter |
| BQ | + Pyxis |
| BR | + WEL-PHF no ATC + Pyxis |
| BS | + WEL-MVR no ATC + Pyxis |
| BT | + WEL-MVF no ATC + Pyxis |
| BU | + Pyxis with Makeup graphite conductivity with threaded adapter |
| 316SS contacting conductivity + Flow Switch manifold on panel | |
| FA | + Flat pH Cartridge no ATC |
| FB | + Rod ORP Cartridge no ATC |
| FC | + Flat ORP Cartridge no ATC |
| FD | + Little Dipper |
| FH | + Flat pH Cartridge no ATC + Little Dipper |
| FI | + Rod ORP Cartridge no ATC + Little Dipper |
| FJ | + Flat ORP Cartridge no ATC + Little Dipper |
| FQ | + Pyxis |
| FR | + WEL-PHF no ATC + Pyxis |
| FS | + WEL-MVR no ATC + Pyxis |
| FT | + WEL-MVF no ATC + Pyxis |
| High pressure contacting conductivity + Flow Switch manifold on panel | |
| DE | + pH & 190783 |
| DF | + ORP & 190783 |
| Electrodeless conductivity + Flow Switch manifold on panel | |
| HA | + Flat pH Cartridge no ATC |
| HB | + Rod ORP Cartridge no ATC |
| HC | + Flat ORP Cartridge no ATC |
| HD | + Little Dipper |
| HH | + Flat pH Cartridge no ATC + Little Dipper |
| HI | + Rod ORP Cartridge no ATC + Little Dipper |
| HJ | + Flat ORP Cartridge no ATC + Little Dipper |
| HK | + Little Dipper with Makeup graphite conductivity with threaded adapter |
| HQ | + Pyxis |
| HR | + WEL-PHF no ATC + Pyxis |
| HS | + WEL-MVR no ATC + Pyxis |
| HT | + WEL-MVF no ATC + Pyxis |
| HU | + Pyxis with Makeup graphite conductivity with threaded adapter |

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