

HYDROLEVEL COMPANY

Temp Limit / LWCO Controls

Low Water Cut-Offs

Water Feeders

Liquid Level Controls

Flow Switches



The HYDROLEVEL Story

Disaster Invokes Change

On October 3, 1962, a boiler explosion that claimed the lives of 21 people occurred at



a New York Telephone building in Manhattan. This disaster, caused by an undetected

low water condition, forever changed the way all steam boilers would be manufactured and installed.

Not long after this tragic event, New York Telephone began investigating better ways of protecting their employees and property from such hazards as low water conditions.

A Man with Ingenuity



At that time, Michael DeLeonardis of Farmingdale, New York, was experimenting with a new electronic water level device for steam boilers. He had developed his idea in Italy, where he trained as a steam engineer in the years before World War II. After immigrating to America, Michael further refined his ideas working on shipboard steam boilers with the Brooklyn Navy Yard.

The Probe Principle

Michael's idea was simple but effective.

Using water as an electrical conductor, he designed a control utilizing a "probe" sensor. The electronic control monitored the level of the boiler water without the use of moving parts that can wear and stick. A revolutionary *time delay*



mechanism was incorporated which allowed the probe to be used in the violent water of a steam boiler without short cycling the burner.

Hydrolevel is Born

Michael took his idea to New York Telephone. They quickly recognized the advantages of his design. In 1965 his electronic control was specified for all New York Telephone buildings – and Hydrolevel Company was born.

As with many inventors, Michael overcame early opposition to his new device and soon other government agencies, utilities and manufacturers began specifying probe type cut-offs for both commercial and residential boilers. It was Michael, along with partner Russ Rymer and son Dominick's staunch defense of the time delay feature, that paved the way for electronic cut-offs used today.

Hydrolevel Today

Over fifty years later, Michael's inventive spirit lives on. Today, Hydrolevel, located in North Haven, Connecticut, offers a full line of innovative products for boiler protection and liquid level control.

The new generation Hydrolevel controls include **CycleGard** foam compensating low water cut-offs, **VXT** programmable water feeders, **Safgard** low water cut-offs and multi-purpose liquid level controls and **HydroStat** which combines multiple functions, including temperature limit, low water cut-off and fuel-saving boiler reset functionality into a single control. Hydrolevel continues to employ the latest technology to combine superior features with performance and durability.



Contents

Water Boiler Controls 2-7

	Universal Temperature Limit, Boiler Reset and Low Water Cut-Off – Residential [HydroStat Model 3200 and 3250]	2
	HydroStat Accessories and Electro-Wells™	3
	HydroStat-IC Five Function Gas Boiler Control	4
	Universal Temperature Limit and Low Water Cut-Off – Residential [HydroStat Model 3150]	5
	Universal High Temperature Limit, Boiler Reset and Low Water Cut-Off – Residential [HydroStat Model 3000]	5
 	Low Water Cut-Offs – Residential/Commercial [1100 Series]	6
 	Low Water Cut-Offs – Residential/Commercial [24 and 170 Series, 500 Series, 600 Series, 700 Series]	7

Steam Boiler Controls 8-14

 	Low Water Cut-Offs – Residential/Commercial [400 Series, 711 and 724 Series, CG400 Series]	8,9
 	Pump Controller/ LWCO – Commercial/Industrial [250 Series, Model 270SV]	10
 	Secondary Low Water Cut-Offs – Commercial/Industrial [500 and 700 Series]	11
  	Flow Switches – Residential/Commercial/Industrial [Model FS200 and FS204]	12
	Water Feeder – Residential [Model VXT-24, VXT-120]	13
 	Water Feeder – Commercial/Industrial [Model VXTC, WM-1 Water Meter]	14

Other Controls 15

 	Multi-Purpose Liquid Level Control – Commercial/Industrial [Model 727 and 787]	15
 	AcuTemp Temperature Control	15

Reference 16

Probe Options/Specifications	16
Manifold Fittings.....	16

CROSS REFERENCE GUIDE is located inside back cover



RESIDENTIAL



COMMERCIAL



INDUSTRIAL

Universal Temperature Limit, Low Water Cut-Off and Boiler Reset – Residential



Model 3200-Plus

for gas-fired boiler

Model 3250-Plus

for oil-fired boilers

Three Function Control

- **Universal Temp Limit**
- **Low Water Cut-Off***
- **Fuel-Saving Boiler Reset**
 - Indoor Reset Through On-Board Thermal Targeting Technology
 - Outdoor Reset and Warm Weather Shut-Down Ready**

*When installed on Hydrolevel Electro-Well™

**Requires purchase of Hydrolevel OS-100 or OS-200 Outdoor Sensor Kit



- **Universal Aquastat† Replacement**
- **Easy Dial Type Set-Up**
- **Dynamic Temperature Display**
- **Test/Settings Button**
- **Low Water Cut-Off**
- **Fuel Saving Boiler Reset**
 - **Thermal Targeting** – Simply dial in the number of heating zones. The on-board microprocessor will save fuel by adjusting boiler temperature based on heating demand.
 - **Outdoor Reset Ready** – Provides outdoor reset and warm weather shutdown functionality with the addition of Hydrolevel’s low cost OS-100 Outdoor Sensor Kit.

†Aquastat is a registered trademark of Honeywell International, Inc. ††Must use Electro-Well for low water cut-off functionality.

Specifications	Model 3200-Plus	Model 3250-Plus
Burner Contacts	30 VA@24 VAC	7.4 FLA, 44.4 LRA@120 VAC
Circulator Contacts	5.8 FLA, 34.8 LRA@120 VAC	5.8 FLA, 34.8 LRA@120 VAC
Operating Range – Low Limit	Off or 110°F - 200°F	Off or 110°F - 200°F
Operating Range – High Limit	100°F - 220°F	100°F - 220°F
Operating Range – Differential	Automatic – will vary between 10° and 20° subtractive based on control settings and boiler temperature	Automatic – will vary between 10° and 20° subtractive based on control settings and boiler temperature

MODEL	VOLTAGE	DESCRIPTION/OPERATION
3200-Plus	120 VAC (24 VAC output)	Universal replacement Aquastat* with adjustable high and low temperature limits for cold start or tankless coil boilers. Features built in low water cut-off (when used with Hydrolevel Electro-Well™) and fuel saving boiler reset technology. Outdoor Reset and Warm Weather Shut-Down capability can be added with purchase of OS-100 or OS-200 Sensor Kit.
3250-Plus	120 VAC	

Patent No. 7,891,572; 8,931,708; 8,844,834; 9,416,981; others pending *Aquastat is a registered trademark of Honeywell International, Inc.

Accessories for HydroStat Controls

Outdoor Sensor Kits

Hydrolevel's optional Outdoor Sensor Kits automatically activate outdoor reset functionality and warm weather shutdown capability when plugged into the Fuel Smart HydroStat control. These kits are available separately at Hydrolevel distributors.

Part	Description
48-140	Model OS-100 Outdoor Sensor Kit
48-145	Model OS-200 Wireless Outdoor Sensor Kit



Model OS-100



Model OS-200

Remote Mounting Options

For all HydroStat Models except 3000 Series and HydroStat-IC Series



Wall/Jacket Mounting Kit

Kit includes: 2 mounting brackets, remote sensor, plastic grommet, rubber well cap, 4 #8x1/2" self-tapping screws.

- 48-101** HydroStat Wall/Jacket Mounting Kit with 2' sensor
- 48-102** HydroStat Wall/Jacket Mounting Kit with 4' sensor
- 48-103** HydroStat Wall/Jacket Mounting Kit with 10' sensor
- 48-104** HydroStat Wall/Jacket Mounting Kit with 20' sensor



Pipe Mounting Kit

Kit includes: mounting bracket for 1" to 2" pipe, remote sensor, plastic grommet, rubber well cap.

- 48-121** HydroStat Pipe Mounting Kit with 4' sensor

Electro-Well™ Models

To enable HydroStat's low water cut-off function.



- | | | | | | | | | | |
|---------------------------------------|---------------------------------------|---|---|---------------------------------------|---------------------------------------|---------------------------------------|---|---|---------------------------------------|
| 48-201
Standard
3/4" NPT | 48-202
Extended
3/4" NPT | 48-204
Extended
3/4" NPT
Short
Insertion | 48-205
Standard
3/4" NPT
Extra Short
Insertion | 48-206
Extended
3/4" NPT | 48-221
Standard
1/2" NPT | 48-222
Extended
1/2" NPT | 48-224
Extended
1/2" NPT
Short
Insertion | 48-225
Standard
1/2" NPT
Extra Short
Insertion | 48-226
Extended
1/2" NPT |
|---------------------------------------|---------------------------------------|---|---|---------------------------------------|---------------------------------------|---------------------------------------|---|---|---------------------------------------|

For atmospheric and induced draft boilers



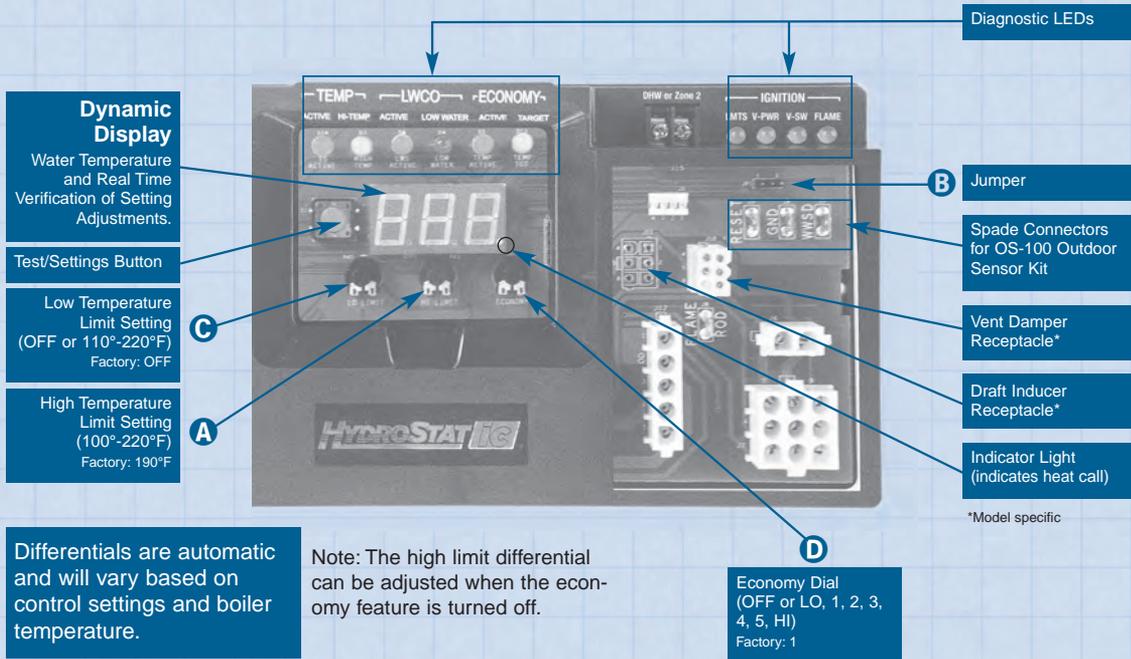
Five Function Control

- **Ignition** – Direct Spark Ignition with single rod flame sensing
- **Temperature Limit Control** – Designed for cold start and tankless coil boilers
- **Low Water Cut-Off** – Provides protection against potentially dangerous low water conditions when installed with the Hydrolevel Electro-Well
- **Fuel Saving Boiler Reset** – Achieved by Thermal Targeting or optional Outdoor Reset capabilities
- **Two Zone** – Circulator outputs for DHW or second heating zone



Specifications

	HydroStat-IC
Line voltage input	120 VAC, 50/60 HZ
Low voltage input	24 VAC, 40 VA
Inducer (4200i)	6 FLA, 18 LRA @ 120 VAC
Vent damper (4200a)	0.5 A @ 24 VAC
Circulator contacts	5.8 FLA, 34.8 LRA @ 120 VAC
Operating range - low limit	Off or 110°F (43°C) - 200°F (93°C)
Operating range - high limit	100°F (38°C) - 220°F (104°C)



Differentials are automatic and will vary based on control settings and boiler temperature.

Note: The high limit differential can be adjusted when the economy feature is turned off.

MODEL	VOLTAGE	DESCRIPTION/OPERATION
4200A 4200i	24 VAC 24 VAC	Multi-function control for gas boilers (4200A - Atmospheric / 4200i - Forced Draft). Provides direct spark ignition, temperature limit control, low water-cut off, fuel saving boiler reset and circular outputs for DHW or second heating zone.

Universal Temperature Limit and Low Water Cut-Off – Residential



Model 3150

for oil-fired boilers

Two Function Control

- Universal Temp Limit
- Low Water Cut-Off*

*When installed on Hydrolevel Electro-Well™

- Replaces Cold Start and Triple-Action Aquastats*
- Simple Dial-Type Temperature and Differential Settings
- Dynamic Temperature Display
- LED Status Lights
- Test/Settings Button
- Program Mode Options



Specifications

Specifications	Model 3150
Burner Contacts	7.4 FLA, 44.4 LRA@120 VAC
Circulator Contacts	5.8 FLA, 34.8 LRA@120 VAC
Operating Range – Low Limit	Off or 110°F - 200°F
Operating Range – High Limit	100°F - 220°F
Operating Range – Differential	10°F - 30°F

MODEL	VOLTAGE	DESCRIPTION/OPERATION
3150	120 VAC	Universal replacement Aquastat* with adjustable high and low temperature limits and differentials for cold start or tankless coil oil boilers. Features built in low water cut-off (when used with Hydrolevel Electro-Well™).

Universal Temperature Limit, Boiler Reset and Low Water Cut-Off – Residential



Model 3000

for gas-fired boilers

Three Function Control

- Universal High Temp Limit
- Fuel-Saving Boiler Reset
- Low Water Cut-Off*
- Easy Dial-Type Set-Up
- LED Status Lights
- LWCO Test Button
- Optional Thermal Pre-Purge

*When installed on Hydrolevel Electro-Well™



Specifications	Model 3000	Model 3000-190
Input Voltage	24 VAC, 60 HZ	24 VAC, 60 HZ
Burner Contacts	50 VA@24 VAC Pilot Duty	50 VA@24 VAC Pilot Duty
Operating Range – High Limit	100°F (38°C) - 220°F (104°C)	100°F (38°C) - 190°F (88°C)

MODEL	VOLTAGE	DESCRIPTION/OPERATION
3000	24 VAC	Universal replacement high limit control with adjustable high limit for cold start gas boilers. Replaces smaller, single-function Aquastat* models. Features built in low water cut-off (when used with Hydrolevel Electro-Well™) and fuel saving boiler temperature reset technology. (Max temp 220°F for Model 3000. Max temp 190°F for Model 3000-190)
3000-190	24 VAC	

Patent No. 7,891,572; 8,931,708; 8,844,834; 9,416,981; others pending *Aquastat is a registered trademark of Honeywell International, Inc.

Low Water Cut-Offs – Residential/Commercial

Safgard™ 1100 Series

- Compact Design
- Automatic and Manual Reset Models
- Burner Circuit Test Button
- Power and Low Water LED Indicators



Specifications	Model 1100	Model 1100M	Model 1150
Power Consumption	1 VA	1 VA	4 VA
Switching Capacity	50- VA	50 VA	125 VA
Switch Contacts	SPST	SPST	SPST
Max. Pressure	160 PSI	160 PSI	160 PSI
Max. Water Temperature	250° F	250° F	250° F

MODEL	RESET	VOLTAGE	DESCRIPTION/OPERATION
1100	Automatic	24 VAC	Interrupts power immediately in a low water condition. Automatically (manually for 1100M) restarts burner on return of water level. Features test button, onboard indicating lights and easy to follow installation instructions. Model 1100 includes plug-in wire harness with labeled quick-connect terminals.
1150	Automatic	120 VAC	
1100M	Manual	24 VAC	

Safgard 1100 Series Wire Harness Options

Model 1100 is available with additional wiring harnesses for popular boilers

45-531-54	Standard wire harness for Model 1100 LWCO 16.00 10.88
45-347	Wire harness for connecting Model 1100 to Burnham PVGA, PVCGA, Series 2, New Yorker CG-D
45-348	45-348 Wire harness for connecting Model 1100 to UTC Boiler Control Module
45-349	45-349 Wire harness for connecting Model 1100 to Lochinvar Knight and Solution, Weil-McLain Ultra
45-350	45-350 Wire harness for connecting Model 1100 to Burnham CHG, SCG, PVG, Crown Bimini
45-353	45-353 Wire harness for connecting Models 1100 and 1100M to vent damper plug on boiler control modules

Low Water Cut-Offs – Residential/Commercial

Safgard™ 24 & 170 Series

- Heavy Duty Design
- Automatic Reset



Specifications	Model 24	Model 170
Power Consumption	8 VA	7 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Pressure	160 PSI	160 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
24	24 VAC	Interrupts power immediately in a low water condition. Heavy duty construction. Automatically restarts burner on return of normal water level. Provides contacts for optional low-water alarm.
170	120 VAC	

Safgard™ 500 Series

- Manual Reset
- Burner Circuit Test Button
- LED Indicating Lights



Specifications	Model 500	Model 550
Power Consumption	2 VA	4 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Pressure	160 PSI	160 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
500	24 VAC	Interrupts power immediately in a low water condition. Burner circuit locks-out if water remains below probe for 30 seconds. Manual reset will not trip due to power failures. Test button simulates low water condition.
550	120 VAC	

Safgard™ 600 Series

- Automatic Reset
- Burner Circuit Test Button
- LED Indicating Lights



Specifications	Model 600	Model 650
Power Consumption	2 VA	4 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Pressure	160 PSI	160 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
600	24 VAC	Interrupts power immediately in a low water condition. Automatically restarts burner on return of water level. Test button checks burner circuit to ensure proper control operation without lowering the water level.
650	120 VAC	

Safgard™ 700 Series

- Manual Reset
- LED Indicating Lights



Specifications	Model 700	Model 750
Power Consumption	2 VA	4 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Pressure	160 PSI	160 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
700	24 VAC	Interrupts power immediately in a low water condition. Burner circuit locks-out if water remains below probe for 30 seconds. Manual reset will not trip due to power failures.
750	120 VAC	

Note: Models 500 and 700 can also be used as a secondary cut-off on steam boilers (see page 11)

Low Water Cut-Offs – Residential/Commercial

Safgard™ 400 Series

- 15 Second Burner Off Delay
- 30 Second Burner On Delay
- Low Water Indicating Light



Specifications	Model 400	Model 450
Power Consumption	2 VA	4 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Steam Pressure	15 PSI	15 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
400	24 VAC	Burner circuit contacts open after 15 second delay in a low water condition. Delay prevents short cycling caused by momentary fluctuations in the boiler water level. Automatically reactivates burner circuit 30 seconds after water reaches the probe, allowing optional water feeder to raise water level above the probe. See page 13 for information on VXT Water Feeder.
450	120 VAC	

Safgard™ 711 and 724 Series

- Low Water Cut-Off for Sight-Glass Attachment
- Two Probe Design
- Automatic Reset
- Includes Quick Hook-Up Fittings for 8" to 14" Sight Glasses



Specifications	711 Series	724 Series
Power Consumption	8 VA	7 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Steam Pressure	35 PSI	35 PSI

MODEL	VOLTAGE	DESCRIPTION/OPERATION
724CF	24 VAC	Mounts to sight glass tapplings. Maintains water level between two probes. Includes 711C manifold, two model EL1214 probes and quick hook-up fittings. <i>Note: The 711 & 724 Series is recommended for use on older boilers that do not have tapplings suitable for Safgard 400 and CycleGard 400 Series cut-offs.</i>
711CF	120 VAC	
724WF	24 VAC	Same as CF models (described above), includes water feed valve assembly.
711WF	120 VAC	

Low Water Cut-Offs – Residential/Commercial

CycleGard® CG400 Series

- Intermittent Level Test – Maximum Protection for Foaming Boilers
- 15 Second Burner Off Delay
- 30 Second Burner On Delay
- Automatic Reset
- Low Water Indicating Light
- Direct Boiler Mounting – Eliminates Blowdowns

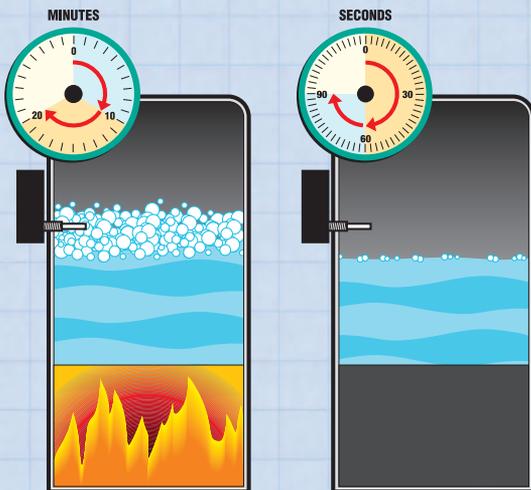


Specifications	Model CG400	Models CG450 and CGT450
Power Consumption	2.1 VA	4.2 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Steam Pressure	15 PSI	15 PSI



MODEL	VOLTAGE	DESCRIPTION/OPERATION
CG400-2090	24 VAC	Burner circuit contacts open after 15 second delay in a low water condition. Delay prevents short cycling caused by momentary fluctuations in the boiler water level. Automatically reactivates burner circuit 30 seconds after water reaches the probe, allowing optional water feeder to raise water level above the probe. Intermittent Level Test (ILT) feature provides maximum boiler protection by removing power from the burner circuit at set intervals. <ul style="list-style-type: none"> ▶ Models ending in "1560" perform the ILT every 15 minutes for 60 seconds. ▶ Models ending in "2060" perform the ILT every 20 minutes for 60 seconds. ▶ Models ending in "2090" perform the ILT every 20 minutes for 90 seconds.
CG450-1560	120 VAC	
CG450-2060	120 VAC	
CGT450-2060	120 VAC	Same as CG450-2060 (described above) with added feature for boilers equipped with tankless coils. The CGT450-2060 suspends operation of the Intermittent Level Test when the boiler is receiving a call for domestic hot water. This feature ensures continued burner operation during a demand for hot water.

U.S. Patent No. 5,739,504; 6,390,027



CycleGard®

Maximum boiler protection – Even in SURGING and FOAMING boilers.

CycleGard continually monitors the boiler water level like other probe type cut-offs. But, unlike any other cut-off, CycleGard uses **Intermittent Level Test (ILT)** technology to provide protection against false signals created by foaming and volatile water conditions in the boiler. CycleGard's **ILT** periodically removes power from the burner circuit. During this test, foam dissipates and the water level stabilizes – allowing CycleGard to monitor the *true* water level in the boiler. Since 1996, the superior protection of CycleGard has made it the standard low water cut-off for many of the industry's leading boiler manufacturers.

▶ See CycleGard video at www.hydrolevel.com

Pump Controller/LWCO – Commercial/Industrial

Safgard™ 250 Series

- No Moving Parts in Boiler Water
- Controls Boiler Feed Pump
- Maintains Recommended Water Level in Boiler
- Available with Water Column Body or for Boilers with Separate Water Columns
- Accommodates Boilers to 250 PSI

Specifications	250 Series
Primary Relay	10 FLA, 60 LRA
Pump Relay	20 FLA, 120 LRA
Switch Contacts	DPST
Power Consumption	13 VA
Max. Steam Pressure	250 PSI



MODEL	VOLTAGE	MANIFOLD	DESCRIPTION/OPERATION
250	120 VAC	250C	Operates boiler feed pump to maintain water level between middle and upper probes. Burner circuit contacts open if water drops below bottom probe. Automatically restarts burner on return of normal water level. Control box and (3) EL1214 probes included.
250WC	120 VAC	1214C-1	

High Water Limit – Residential/Commercial/Industrial

Safgard™ Model 270SV

- Automatically Interrupts Pump or Feeder when Water Contacts Probe
- Provides Contacts for Optional Alarm
- Ideal for Boilers, Receiver Tanks and Process Applications

Specifications	Model 270SV
Power Consumption	7 VA
Switching Capacity	.25hp @ 120 VAC
Resistive Load	20 A
Switch Contacts	SPDT
Max. Steam Pressure	250 PSI



MODEL	VOLTAGE	DESCRIPTION/OPERATION
270SV	120 VAC	Interrupts power to pump or water feeder in high water condition. Provides contacts for optional alarm. Includes EL1214-SV probe suitable for mounting in standard black tee.

Secondary Low Water Cut-Offs – Commercial/Industrial

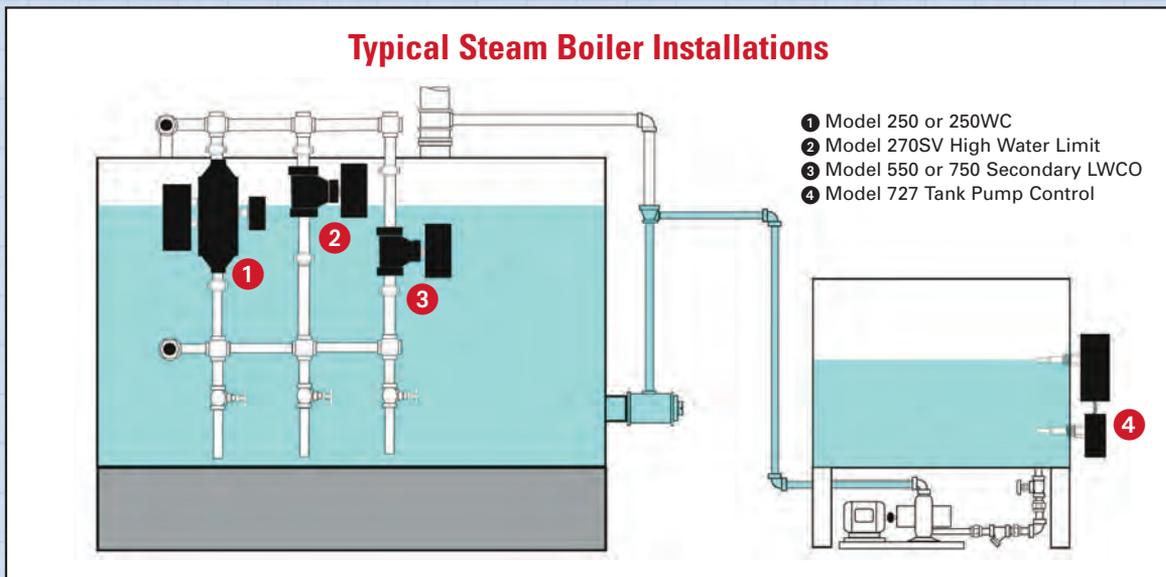
Safgard™ 500 and 700 Series

- Manual Reset with 30 Second Delay and Power Outage Protection
- Burner Circuit Test Button (500 Series only)
- LED Indicating Lights
- Meets ASME CSD-1 Requirements for Secondary Cut-Offs on Commercial Steam Boilers

Specifications	Models 500 and 700	Models 550 and 750
Power Consumption	2 VA	4 VA
Switching Capacity	50 VA	5.8 FLA, 34.8 LRA
Switch Contacts	SPDT	SPDT
Max. Steam Pressure	250 PSI	250 PSI



MODEL	VOLTAGE	DESCRIPTION/OPERATION
500 550	24 VAC 120 VAC	Interrupts power in a low water condition. Burner circuit locks-out if water remains below probe for 30 seconds. Manual reset will not trip due to power failures. Test button checks burner circuit to ensure proper control operation and lock-out function without lowering the water level. <i>Note: Can also be used as a primary cut-off on hot water boilers (see page 7).</i>
700 750	24 VAC 120 VAC	Same as 500 Series above without test button feature.



For Accurate Monitoring of Liquid Flow in Pipelines

Safgard™ Model FS200 and FS204

- EPDM Seal for Superior Performance over Mechanical Bellows
- Universal Design – Replaces Flow Switches by McDonnell Miller, Penn, Taco, Potter, Watts and others
- Single Pole Double Throw Switch for Operating Signal Devices, Motors, Alarms, Metering Devices and Heating Units
- Includes Four Heavy Duty Stainless Steel Paddles
- Two 7/8" Electrical Knock-Outs for 1/2" Conduit
- For Use on 1" to 6" Diameter Pipe
- 1" NPT Pipe Connection



Specifications	Model FS200	Model FS204
Enclosure	NEMA 1 – General Purpose	NEMA 4 – Wet Locations
Control Chassis Material	13 gauge galvanized steel	Anodized cast aluminum
Control Cover Material	16 gauge powder coated steel	Powder coated cast aluminum
Maximum Fluid Temperature	250°F (121°C)	250°F (121°C)
Minimum Fluid Temperature	32°F (0°C)	32°F (0°C)
Contacts	SPDT switch 7.4 FLA, 44.4 LRA @120VAC Motor Duty	SPDT switch 7.4 FLA, 44.4 LRA @120VAC Motor Duty
Pilot Duty Rating	125VA@120/240VAC	125VA@120/240VAC
Maximum Service Pressure	160 psi	160 psi
Usage	1" to 6" pipe sizes (see Flow Chart)	1" to 6" pipe sizes (see Flow Chart)

FLOW SPECIFICATIONS IN GPM										
Pipe Size ▶		1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"
Minimum Adjustment	Flow Activates	4.5	8.1	11.8	16.5	25	33	51	85	120
	Flow Deactivates	2.2	6.8	7.6	9.3	19	22	38	75	100
Maximum Adjustment	Flow Activates	14.8	22.1	25.7	32.3	75	90	110	170	240
	Flow Deactivates	13.8	20.1	23.7	30.5	72	85	100	155	220

MODEL	DESCRIPTION
FS200	Activates or deactivates electrical equipment upon the start or stop of liquid flow. NEMA 1.
FS204	Activates or deactivates electrical equipment upon the start or stop of liquid flow. NEMA 4.

Water Feeder – Residential



Model VXT-24 and VXT-120

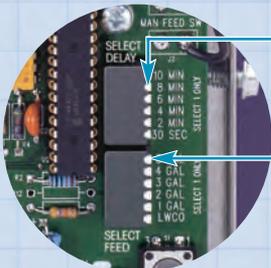


- **Universal Compatibility**
 - Works with all major probe and float-type low water cut-offs.

- **Digital Feed Counter**
 - Continually tracks and displays the amount of make-up water fed into the boiler – essential for diagnosing system leaks that can severely shorten the life of the boiler.



- **Call-For-Feed Indicator**
 - Illuminates during feed signal from the LWCO



- **Programmable Feed Delay Settings (30 Sec. to 10 Min)**
 - Helps prevent flooded boilers. Allows time for condensate to return to boiler before initiating feed cycle – ensuring that additional water is needed.
- **Programmable Feed Amount Settings (LWCO and 1-5 Gal)**
 - With the LWCO setting selected, the VXT raises the water level to low water cut-off. The 1 to 5 Gallon settings can be selected to fine-tune the VXT to restore the normal operating water level above the low water cut-off.

- **Manual Feed Button**
 - Allows for manual feeds with the touch of a button.
- **Underfeed Protection**
 - If one feed cycle is not sufficient to restore boiler operation, the VXT will delay and feed one additional cycle.
- **Lock-Out Flood Protection**
 - Locks-out after two consecutive feed cycles to prevent flooding.

Specifications	VXT-24	VXT-120
Power Consumption	10 VA	15 VA
Max. Fluid Temperature	150° F	150° F
Flow Rate	1 GPM	1 GPM
Fittings	1/2" Sweat	1/2" Sweat

▶ See VXT video at www.hydrolevel.com

MODEL	VOLTAGE	DESCRIPTION/OPERATION
VXT-24	24 VAC	Upon a feed signal from low water cut-off, the VXT feeder delays (from 30 seconds to 10 minutes) to allow condensate to return to boiler. If make-up water is required after the delay period, the VXT will initiate a feed cycle. The VXT can be set to feed to the level of the low water cut-off or can be set from 1 to 5 gallons to raise the water level above the cut-off to the normal operating level. The digital feed counter tracks all water fed into the boiler including water added using the Manual Feed Button.
VXT-120	120 VAC	

U.S. Patent No. 6,688,329; 7,093,611; 6,926,028

Water Feeder – Commercial/Industrial



Model VXTC



- **Programmable Feed Delay Settings (0 to 10 Min)**
 - Prevents over-filling by allowing time for condensate to return to boiler before initiating feed cycle. A “NO DELAY” delay setting is available for process steam applications.
- **Programmable Feed Amount Settings (LWCO to LWCO+120 Sec)**
 - Includes one setting to raise the water level to the boiler control and five additional settings to raise the water level above the boiler control.
- **LED Status Indicator**
 - Displays current mode of operation. Also provides timer for convenient set-up of programmable feed amount setting.
- **Manual Feed Button**
 - Allows for manual feeds with the touch of a button.
- **Lock-Out Flood Protection**
 - Locks out after sustained 10 minute feed cycle to prevent flooding.
- **Water Meter**
 - Heavy duty meter tracks make-up water added to system.
- **Fittings**
 - Includes fittings for easy attachment to 3/4" water line.



Specifications	VXTC
Max. Feed Water Temperature	100° F
Flow Rate (@ 40 PSI)	10 GPM
Electrical	120 VAC, 60 HZ
Fittings	3/4" NPT

MODEL	VOLTAGE	DESCRIPTION/OPERATION
VXTC	120 VAC	Designed to operate with all major low water cut-offs and pump controllers. Upon a low water signal from the boiler control, the VXTC delays (from 0 to 10 minutes) to allow condensate to return to the system. If make-up water is required following the delay period, the VXTC initiates a feed cycle. The VXTC can be set to feed to the level of the boiler control or to varying levels above. The heavy-duty water meter tracks all water fed into the system. The VXTC includes water feeder, strainer, flow restrictor and water meter with 3/4" NPT fittings.
VXTC-WF	120 VAC	Water Feeder as above without water meter. Includes water feeder, strainer and flow restrictor.
WM-1	n/a	Water Meter as described above without water feeder. Includes water meter and 3/4" NPT fittings.

Multi-Purpose Liquid Level Controls

Safgard™ Model 727 and 787 Tank Pump Control

- Controls Pump to Maintain Desired Liquid Level
- Can be Mounted Directly in Tank or in External Equalizing Line
- Remote Probe Mounts Any Distance from Control to Accomodate Virtually Any Application

Specifications	Models 727 and 787
Max. Pressure	250 PSI
Power Consumption	7 VA
Switch Contacts	SPST
Switch Ratings	10 A @ 240 VAC 1/3 hp @ 120 VAC 1/2 hp @ 240-600 VAC



MODEL	VOLTAGE	DESCRIPTION/OPERATION
727	120 VAC	LOW LEVEL CONTROL Maintains level between probes. Energizes pump to refill tank when liquid level falls below bottom probe. De-energizes pump when liquid level reaches upper probe. Includes (1) EL1214-SV and (1) EL1214-RSV probes.
787	120 VAC	HIGH LEVEL CONTROL Maintains level between probes. Energizes pump to remove liquid from tank when the level reaches the upper probe. De-energizes pump when liquid level falls below bottom probe. Includes (1) EL1214-SV and (1) EL1214-RSV probes.

Temperature Control

AcuTemp™

- LED Display – Indicates temperature set point and when the control is calling for heat
- Push-to-Set Dial – Provides for easy setup while guarding against unintended changes
- Advanced Temperature Control – Software algorithm continually monitors the rate of change to optimize water temperature and prevent under and overshooting
- Fahrenheit or Celsius



Specifications	AcuTemp
Input	24 VAC, 60 Hz
Power	2.4 VA
Output Dry Contacts	50 VA @ 24 VAC, 60 Hz
Ambient Temp	30°F - 140°F
Operating Temp	60°F - 180°F

MODEL	VOLTAGE	DESCRIPTION/OPERATION
2000	24 VAC	Controls water temperature in indirect water heaters. The control is designed to closely monitor the rate of tank temperature changes and controls the heating source to minimize fluctuations in tank temperature, while optimizing fuel efficiency.

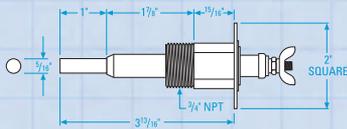
Probe Options/Specifications

Add letters in the chart below to the base model number to specify other probe options. (Example: CG450P)

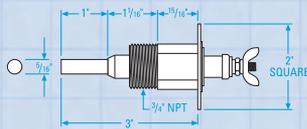
MODEL SUFFIX	PROBE MODEL DESIGNATED	PROBE DESCRIPTION
SV	EL1214-SV	3/4" NPT. Short Inside Dimension. Designed for installation in standard reducing tee and short clearance installations.
SVA	EL1220-SV	1/2" NPT. Short Inside Dimension. Designed for installation in standard reducing tee and short clearance installations.
P	EL1214-P	3/4" NPT. Long nut for thicker boiler jackets.
A	EL1220	1/2" NPT. Same dimensions as standard EL1214.
R	EL1214-R	3/4" NPT. Remote mount probe mounted to j-box (standard dimensions).
RA	EL1220-R	1/2" NPT. Remote mount probe mounted to j-box (standard dimensions).

Test pressure 1000 PSI, all models.

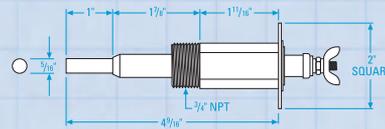
Note: All controls include one EL1214 probe unless otherwise specified.



EL1214 STANDARD 3/4" NPT
EL1220 1/2" NPT



EL1214-SV 3/4" NPT
EL1220-SV 1/2" NPT



EL1214-P 3/4" NPT



REMOTE PROBE
EL1214-R
EL1220-R

Manifold Fittings



1214C-1



711C



250C



1" H.P. TEE



1214C-2



FOEM

MODEL	MAX. PSI	DESCRIPTION
1214C-1	250	1" x 1" x (3) 3/4". Three-probe manifold with tri cock and gauge glass tapplings. Supplied with control models LCFT 967, 250WC, 250MWC.
711C	35	Two-probe manifold. Supplied with control models 711 and 724.
250C	250	1" x 1" x (3) 3/4". Three-probe manifold. Supplied with control models 250 and 250M.
1" H.P. TEE	250	1" x 1" x 3/4". High Pressure Tee for use with EL1214-SV probe .
1214C-2	250	1" x 1" x 3/4". One-probe manifold.
FOEM-1	160	One-probe manifolds.
FOEM-2	160	FOEM-1 is 1 1/2" x 1 1/2" x 3/4"; FOEM-2 is 1" x 1" x 3/4"; FOEM-3 is 1 1/4" x 1 1/4" x 3/4".
FOEM-3	160	

Cross Reference Guide

Hydrolevel Model #	Description	Honeywell Model #	McDonnell & Miller Model #	Taco Model #
170	Low Water Cut-Off (Automatic Reset - 120 VAC)		901	LTA-2
500	Low Water Cut-Off (Manual Reset & Test Button/Light - 24 VAC)		PS-850-M-24 PSE-802-M-24	LTM024
550	Low Water Cut-Off (Manual Reset & Test Button/Light - 120 VAC)	RW700B1039	900M PS-850-M-120 PSE-801-M-120 PS-851M-120	LTM120
600	Low Water Cut-Off (Automatic Reset & Test Button/Light - 24 VAC)	RW700A1098	PS-850-24 PS-852-24	LTA024
650	Low Water Cut-Off (Automatic Reset & Test Button/Light - 120 VAC)	RW700A1007	900C	LTA120
750	Low Water Cut-Off (Manual Reset - 120VAC)	RW700B1021	901M	LTM120
1100	Low Water Cut-Off (Automatic Reset / compact size - with wiring harness - 24VAC)		RB-24 RB-24E	LTR024
1150	Low Water Cut-Off (Automatic Reset / compact size - 120VAC)		RB-122	LTA120
1100M	Low Water Cut-Off (Manual Reset / compact size - 24VAC)			
170SV	Low Water Cut-Off (Automatic Reset / heavy duty contacts - 24VAC)		RB-120	
3100 3200	Universal Temperature Limit - 24VAC	LA8148E LA8124E		
3150 3250 3250-Plus	Universal Temperature Limit - 120VAC	L7124A L7148A L7224C L7248A L8124A L8148A L7124C L7124C L7224A L7224U L7248C L8124C L8148C		
4200A 4200I	Five Function Control for Gas Boilers	59361		
500SV	Low Water Cut-Off (Manual Reset & Test Button/Light/short probe - 24 VAC)		PS-852-M-SP-4	LTM024
550SV	Low Water Cut-Off (Manual Reset & Test Button/Light/short probe - 120 VAC)		PS-851-M-SP-120	LTM120
600SV	Low Water Cut-Off (Automatic Reset & Test Button/Light/short probe - 24 VAC)		PS-852-SP-24	LTA024
CG400	Low Water Cut-Off (Automatic Reset with delay / steam primary - 24VAC)		PS-802-24 PSE-802-24 PS-800-24	LFA024
CG450	Low Water Cut-Off (Automatic Reset with delay / steam primary - 120VAC)	RW700A1080	PS-801-120 PSE-801-120 PS-800-120	LFA120
FS200	Flow Switch, general purpose, NEMA 1 enclosure		FS-251 FS-4-3	IFS01/02/H1/H2
FS204	Flow Switch, general purpose, NEMA 4 enclosure		FS-8W FS-254	IFSWS
VXT-120	Water Feeder M&M "Unimatch" - Hydrolevel Adjustable - 120VAC	VW400A1004	WF-2-120 WF2-U-120V WFE-120V	EWF120-1
VXT-24	Water Feeder M&M "Unimatch" - Hydrolevel Adjustable - 24VAC	VW800A1004	WF-2-24 WF2-U-24V WFE-24v	EWF024-1

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