AutoHot®

SUBMITTAL | SPECIFICATIONS DR CONTROLLER SERIES

The Enovative **AutoHot®** system is an on-demand recirculation system that delivers hot water from the water heater and through the building or home quickly and with reduced usage of both water and energy (gas or electric). The system operates by turning on the pump when an activator is triggered indicating that there is a demand for hot water. The pump delivers hot water from the water heater throughout the building rapidly, and turns off when hot water is detected throughout the plumbing. Multiple activation options exist, please see spec sheets or brochure on activation options. This model has a built in wireless receiver that can be paired with our wireless push button (WB-S-16A) (1 included) or a wireless motion sensor (WM-S-16A) (not included). The **AutoHot®** system meets latest building codes and energy efficiency standards throughout the USA including CA Title 24 and IECC and can receive LEED credits. The systems can come with various 3-speed pumps or standalone. Get the luxury of hot water quickly without sacrificing environmental sustainability.

Assembly   **Side View**

4.8"

1.4"

5.35"   CONTROL BOX

SENSOR CONNECTION HARNESS

AC POWER CORD

PUMP
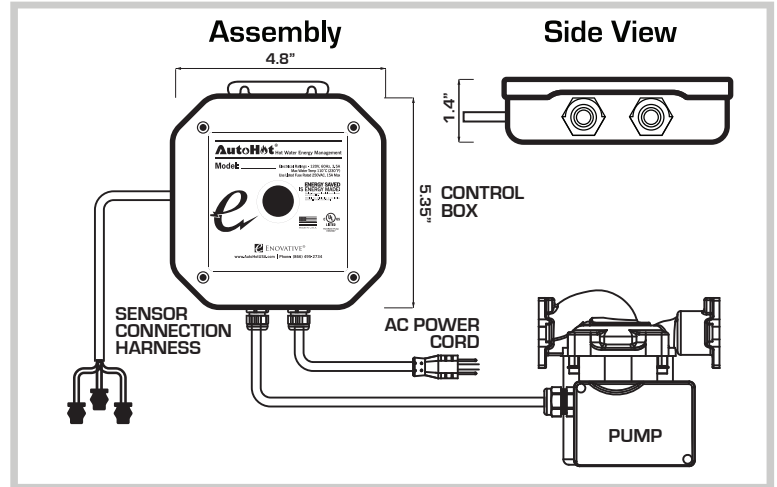
CONTROLLER SPECIFICATIONS

CONTROLLER BOX WEIGHT	14 oz
DIMENSIONS	4.8" H x 4.8" W x 1.2" D (Add 1" for strain relief connectors) 122 mm x 122 mm x 30 mm
ENCLOSURE	PC/ABS, Min.thickness 3.0 mm, 5VA/V-0, HWI 2, HAI 0, RTI 85, CTI 0
APPROVALS	Pumps compliant with NSF 61 low lead requirements, Controls have ETL compliance, meeting CA Title 24 code requirements for on-demand recirculation pump operation.
POWER SUPPLY	120VAC, 60Hz, 2.15A
PUMP RELAY	1/2 hp (9.8 FLA/58.8 LRA), 125 V ac, 6,000 cycles, normally open
ACCESSORIES	See available accessory on accessory spec sheets
MODES AND ADJUSMENTS	(1) Demand mode - Turn on with sensor, off with temperature (2) Thermo mode - Turn on and off based on temperature setpoint (3) Timer mode - Turn on with sensor, turn off after a specific interval has elapsed
LED INDICATORS	Standby: The center button indicator wil be off Receiving signal: The center button indicator will flash 3 seconds sharp fast flashing Runtime: The center button indicator will flash slowly Pairing: The center button will remain flashing for 15 seconds or until it receives signal Target temperature: The center button will stay on
ADJUSTABLE SETTING	Lockout - Temperature when the pump turns off, Delta - Rise in temperature (delta T) when the pump turns off, Interval - time that passes for pump to turn off
INTEGRATED RECEIVER	700 Ft open area, 33.92MHZ
WARRANTY	Limited 5 year

DESCRIPTION OF OPERATION

The pump controller receives a signal from a wireless or wired device.

When the signal is received, it switches on a relay that controls the pump. If the temperature is less than 5 degrees F (2.5 degrees C) below target temperature, the relay does not switch on.

The relay switches off again if any one of the following conditions is met:
- The temperature at the temperature sensor is higher than the target temperature
- The change in temperature over one second is greater than target delta
- The pump has been running for longer than the allowed target runtime

PARTS DESCRIPTION

Green and white harness, for wired LED indicator

Black and Red harness, for wired button (Wired button included with all units)

Black and black harness, for NTC temperature sensor. (NTC sensor included with all units)

AC output cable, cable output to water pump

AC input cable, power input, AC

Soft Silicon button LED indicator and integrated receiver interface

MODEL #	DESCRIPTION
DR000A 2nd GEN	Residential Demand Recirculation Controller. Standalone
DR055A/DR055U* 2nd GEN	Residential Demand Recirculation Controller, 55-series pump *Union pump in place of flanges
DR055A-USK** 2nd GEN	Residential Demand Recirculation Controller, 55-series pump, under sink kit
DR099A 2nd GEN	Residential Demand Recirculation Controller, 99-series pump
DR099A-USK** 2nd GEN	Residential Demand Recirculation Controller, 99-series pump, under sink kit
DR150A 2nd GEN	Residential Demand Recirculation Controller, 150-series pump
DR150A-USK** 2nd GEN	Residential Demand Recirculation Controller, 150-series pump, under sink kit
**-USK includes two 3/4" stainless steel flex lines, two custom tees, two pump flanges	

ENOVATIVE MANUFACTURING LLC ®

AutoHot ®

JOB or CUSTOMER:			
ENGINEER:			
CONTRACTOR:			
SUBMITTED BY:		APPROVED BY:	ORDER NO:
Date:		Date:	Date:

55-SERIES PUMP SPECIFICATIONS

TECHNICAL & ELECTRICAL DATA

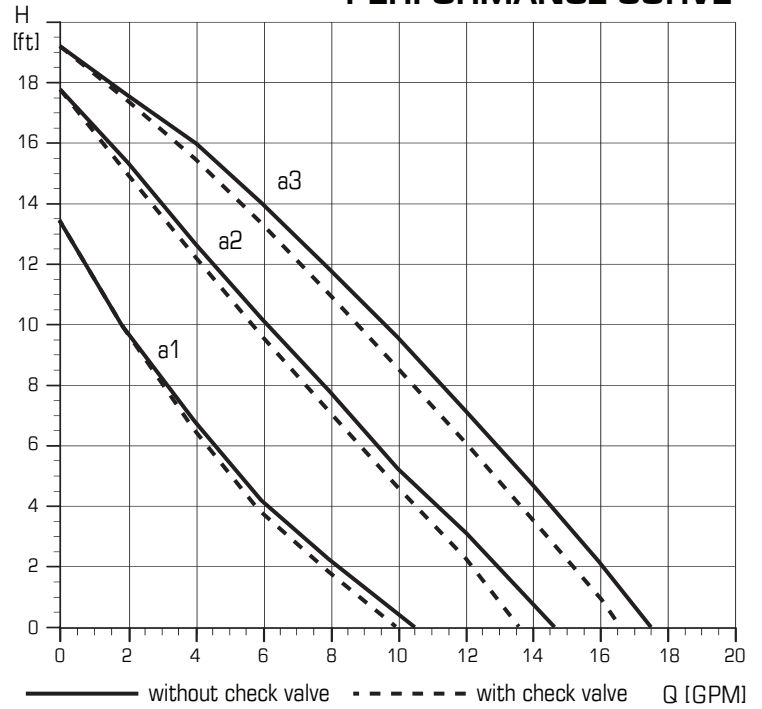|	
Flow range:	0-17 gpm
Head range:	0-19 feet
Motors:	2-pole, single-phase
Max. liquid temperature:	230°F (110°C)
Min. liquid temperature:	36°F (2°C)
Max. system pressure:	145 psi (10 bar)

Model	Spd	Volts	Amps	Watts	Hp	Capacitor
55-Series	3	115	0.75	87	0.12	10 µF/180 V
	2		0.69	77	0.10	10 µF/180 V
	1		0.53	58	0.08	10 µF/180 V

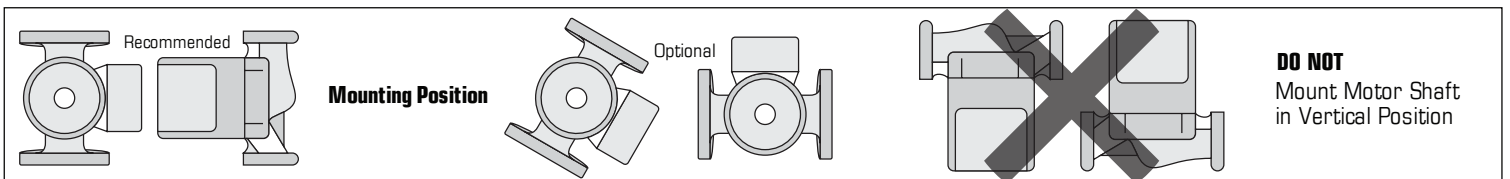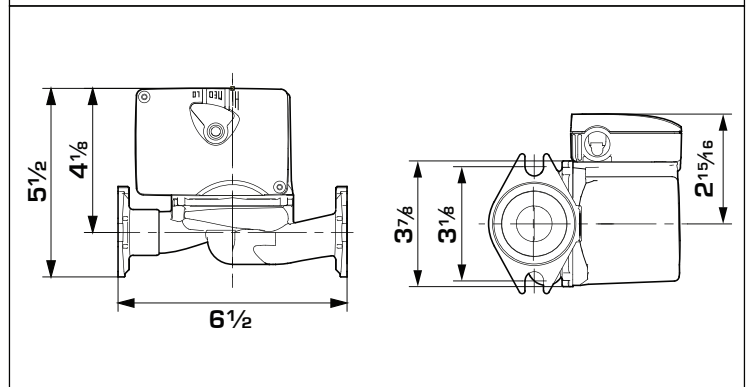| Part No.	Name	Description
DR055A	AutoHot ®	55-series pump, residential controller, push button activator
DR055A-USK		55-series pump, residential controller, push button, Under Sink Kit
DR055A Gen 2		55-series pump, residential controller, integrated receiver, wireless and wired push button activators
DR055A-USK Gen 2		55-series pump, residential controller, integrated receiver, wireless and wired push button activators, Under Sink Kit.

FEATURES

3-speed settings
Whisper quiet operation
Integral check valve

PERFORMANCE CURVE

H [ft]

a1, a2, a3

—— without check valve   - - - - with check valve   Q [GPM]

SIZE & WEIGHT

Model	Type and Size	Wt. (lbs)
55	GF 15/26	7.25

5½   4⅛   3⅞   3⅛   6½   2¹⁵⁄₁₆

Recommended   Optional   Mounting Position

DO NOT Mount Motor Shaft in Vertical Position

99-SERIES PUMP SPECIFICATIONS

TECHNICAL & ELECTRICAL DATA
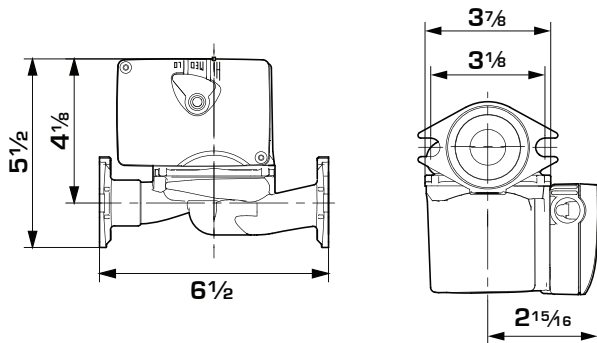
Flow range:	0-33 gpm
Head range:	0-29 feet
Motors:	2-pole, single-phase
Max. liquid temperature:	230°F (110°C)
Min. liquid temperature:	36°F (2°C)
Max. system pressure:	145 psi (10 bar)

Model	Spd	Volts	Amps	Watts	Hp	Capacitor
99-Series	3	115	1.8	197	1/6	20 µF / 180 V
	2		1.8	179	1/6	20 µF / 180 V
	1		1.8	150	1/6	20 µF / 180 V

Performance Curve
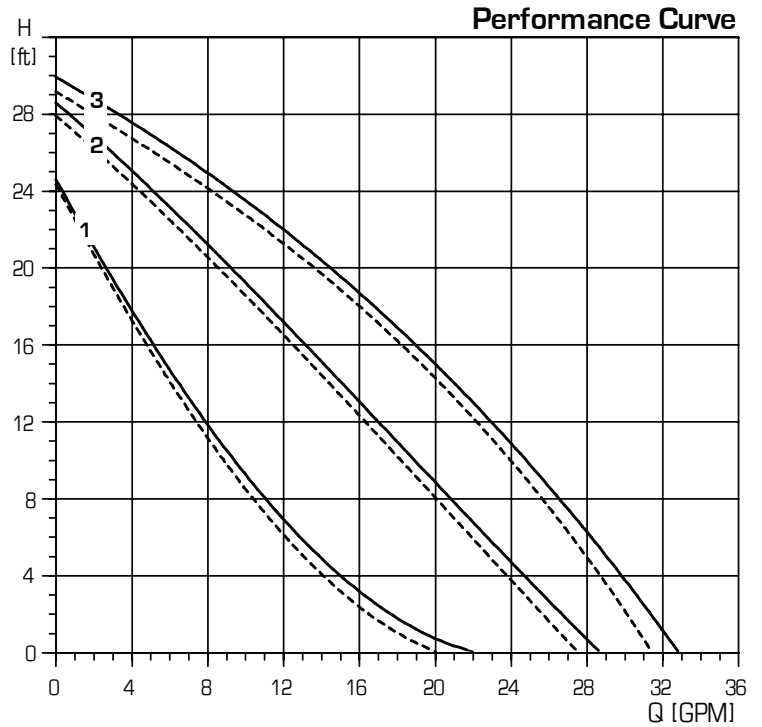
SIZE & WEIGHT

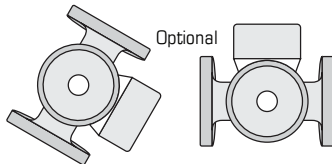| Model	Type and Size	Wt. (lbs)
99-11	Flange - (2) ½" Dia. Bolt Holes	10

MATERIALS OF CONSTRUCTION

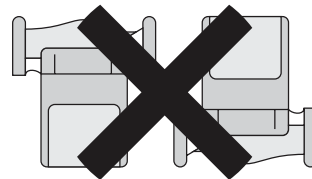| DESCRIPTION	MATERIAL
Inlet Cone, Bearing Plate, Bearing Retainers, Rotor Can, Rotor Cladding Shaft Retainer	304 Stainless Steel
Stator Housing	Aluminum
Shaft, Upper & Lower Radial Bearings	Aluminum Oxide Ceramic
Thrust Bearing	Carbon bearing and EPDM retainer
Check Valve	ACETAL with 302 Stainless Steel Spring & Nitrile Rubber Seats
Pump Housing (Volute)	Silicon bronze C875 or Stainless steel 300 series
O'Ring & Gaskets	EP (Ethylene Propylene Rubber)
Impeller	PES Composite (30% Glass Filled)
Terminal Box	Noryl®

DO NOT Mount Motor Shaft in Vertical Position

JOB or CUSTOMER:			
ENGINEER:			
CONTRACTOR:			
SUBMITTED BY:	APPROVED BY:		ORDER NO:
Date:	Date:		Date:

150-SERIES PUMP SPECIFICATIONS

TECHNICAL & ELECTRICAL DATA

Flow range:	0-53 gpm
Head range:	0-46 feet
Motors:	2-pole, single-phase
Max. liquid temperature:	230°F (110°C)
Min. liquid temperature:	36°F (2°C)
Max. system pressure:	145 psi (10 bar)

Model	Spd	Volts	Amps	Watts	Hp	Capacitor
150-Series	3	115	3.5	370	1/6	40 µF / 180 V
	2		3.1	335	1/6	40 µF / 180 V
	1		2.5	265	1/6	40 µF / 180 V

Performance Curve
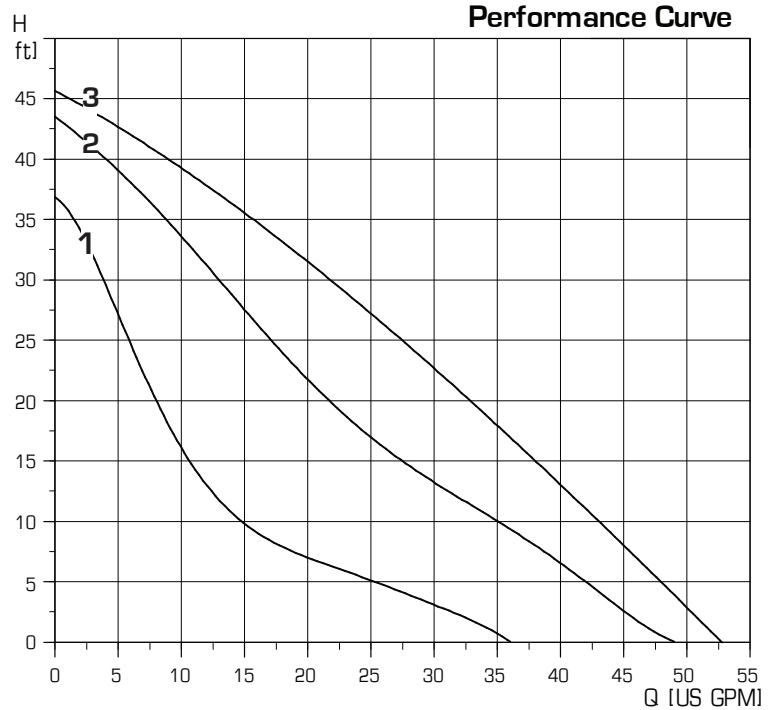
SIZE & WEIGHT

Model	Type and Size	Wt. (lbs)
UPS 26-150 SF	GF 15/26	6

MATERIALS OF CONSTRUCTION

DESCRIPTION	MATERIAL
Inlet Cone, Bearing Plate, Bearing Retainers, Rotor Can, Rotor Cladding Shaft Retainer	304 Stainless Steel
Stator Housing	Aluminum
Shaft, Upper & Lower Radial Bearings	Aluminum Oxide Ceramic
Thrust Bearing	Carbon bearing and EPDM retainer
Check Valve	ACETAL with 302 Stainless Steel Spring & Nitrile Rubber Seats
Pump Housing (Volute)	Silicon bronze C875 or Stainless steel 300 series
O'Ring & Gaskets	EP (Ethylene Propylene Rubber)
Impeller	PES Composite (30% Glass Filled)
Terminal Box	Noryl®

Recommended

Optional

Mounting Position
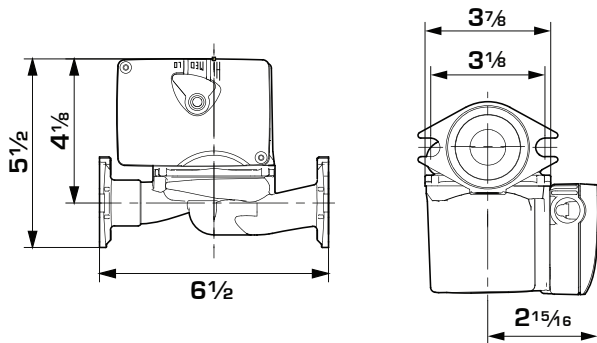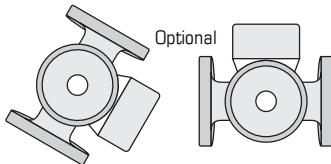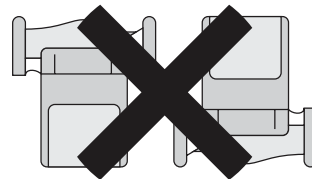
DO NOT
Mount Motor Shaft
in Vertical Position

AutoHot®

JOB or CUSTOMER:				
ENGINEER:				
CONTRACTOR:				
SUBMITTED BY:		APPROVED BY:		ORDER NO:
Date:		Date:		Date:

SUBMITTAL | SPECIFICATIONS DR CONTROLLER SERIES

WM-S-16A
(Wireless Motion Sensor)

Description

The wireless motion sensor can be paired with AutoHot® gen1 and gen2 AutoHot® controllers. For Gen1 controllers, this wireless motion sensor needs to be used in conjunction with the Wireless Receiver model WR-16A to activate the AutoHot® system. For Gen2 model numbers, the receiver is already integrated into the controller, there is no need to get a receiver separately. The range of the motion sensor is up to 600 feet in open air and up to 10 wireless devices can be used per controller. This wireless motion sensor can be used in combination of any other activation device.

Height: 3.375 Inches	Depth: 2.5 Inches	Net Weight: 35 Grams	Width: 2.125 Inches	Gross Wight: 45 Grams

SPECIFICATIONS

Working Voltage	DC 3V (2 AAA batteries)	Voltage under USB line power supply	5V
Working current	15Ma	Working frequency	433 MHz ± 2MHz
Current in suspend mode	30 Ua	Working temperature	-15°C ~ 60°C
Detecting area	4~5Mx110°	Waterproof (Yes or No)	No
Working range between reciver and sensor	120~150m in the open air		
LED lights	1 red LED for low power alert, 3 blue LED for detecting alert or extremely low power		

WB-S-16A
(Wireless Button Sensor)

Description

The wireless Push Button is used to activate the AutoHot® on demand system from a remote location, it can be paired with AutoHot® gen1 and gen2 AutoHot® controllers. For Gen1 controllers, this wireless push button needs to be used in conjunction with the Wireless Receiver model WR-16A. For Gen2 model numbers, the receiver is already integrated into the controller, there is no need to get a receiver separately. The wireless push button has a range of about 1000 feet in open air. Up to 10 wireless devices can be used per controller. It comes with mounting screws and double sided foam tape for easy mounting, it can be used in a combination of any other activation device.

Height: 2.8125 Inches	Depth: .75 Inches	Net Weight: 20 Grams	Width: 1.625 Inches	Gross Wight: 22 Grams

SPECIFICATION

Transmitter working voltage	A23 12V Battery
Transmitter power consumption	144mW
Transmitter volume	25-110db
Operating frequency	433MHz ± 2MHz

HB-S-20LED
(Hardwired LED Lighted Push Button)

Description

The hardwired LED indicator push button is a normally open momentary contact switch that activates the AutoHot® system, it has a LED indicator which lights up when the return line is hot and turns off when the lines have cooled down and the pump needs to be reactivated. The hardwired LED rocker switch has a 4 feet long cable attached with color coded wires (22/4 cable). Black and Red are for the dry switch, Green (positive) and White (negative) are the power wires for the LED. Power. Use color code matching and install in parallel when installing several of these devices. For gen1 controllers use the green connectors supplied to plug into the corresponding sockets inside the controller. For gen2 controllers, use the harnesses provided.

Height: 0.8 Inches	Depth: 1.3 Inches	Net Weight: 20 Grams	Width: 0.86 Inches	Gross Weight: 35 Grams

SPECIFICATION

Contact type	Momentary
Head shape	Flat Round
Switch rating	2A
Terminal number	4; Wire Splice
Material	Stainless Steel
Wire	22awg 4 wire (22/4 stranded or solid wire)
Housing color	Silver Tone
Thread diameter	18 mm / 0.70"
LED Color	Red

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## HB-S-13A
(Hardwired Push Button)

Description

The hardwired push button activator is a normally open, momentary contact switch that signals the AutoHot® to turn on when pressed by the user. One hard wired push button comes standard with every AutoHot® system and is suitable for a 16mm mounting hole. You can run multiple hardwired buttons in parallel to activate the AutoHot® system from various fixture locations. The hardwired push button has a 4 feet long (22/2 cable) attached with color coded wires. Black and Red are for the dry switch, there is no polarity. Use color code matching and install in parallel when installing these devices. For gen1 controllers use the green connectors supplied to plug into the corresponding sockets inside the controller. For gen2 controllers, use the harnesses provided with the controller to connect the low voltage wiring into the correct harness connector.

Thread Diameter: 16 mm	Length: 24 mm / 0.94"	Net Weight: 14 g	Width: 21 mm / 0.83"

SPECIFICATIONS		
	Contact type	Momentary (1N.O)
	Head shape	Round
	Switch rating	2A
	Terminal number	2
	Material	Stainless Steel
	Wire	22awg 2 wire (22/2 stranded or solid wire)
	Housing color	Silver Tone
	Thread diameter	16 mm / 0.63"
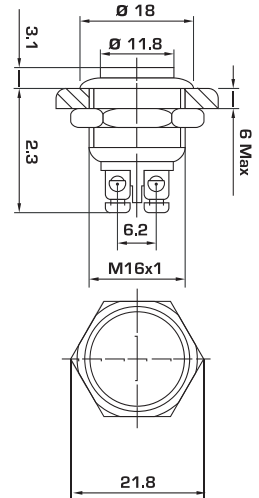
HM-S-22A
(Hardwired Motion Sensor)

Description

The hardwired Motion sensor has a normally open contact switch, when the motion sensor detects movement, it closes the switch activating the AutoHot® system. It has a LED indicator which lights up to indicate motion detection and AutoHot® system activation. The motion sensor gives the option to turn off the LED. The hardwired motion sensor has a 4 feet long cable (22/4 cable) attached with color coded wires. Black and Red wires are for the dry switch signal, Green (positive) and White (negative) are the power wires (5VDC). Use color code matching and install in parallel when installing these devices.

SPECIFICATIONS		
	Model	HM-S-22A
	Detecting Distance	8M
	Working Voltage	5 VDC
	Detecting Angle	360° LED Light is ON
	Working Current	≤ 18mA
	Working Temperature	14-122°F
	Dimension	88mm x 22mm
	Wire	22awg 4 wire (22/4 stranded or solid wire)
	Installation	Ceiling or Wall Mounted
	Alarm Output	Default N.O (N.C Optional)
	LED Indicator	On/Off Optional

AutoHot®

SUBMITTAL | SPECIFICATIONS DR CONTROLLER SERIES

HR-S-17LED
(Hardwired Rocker Switch-White LED)

Description

The hardwired decorative LED rocker switch, has a normally open contact switch, when pressing the switch the contact closes activating the AutoHot® system. It has a LED indicator which lights up when the return line is hot and turns off when the lines have cooled down and the pump needs to be reactivated. The hardwired LED rocker switch has a 4 feet long cable attached with color coded wires (22/4 cable). Black and Red are for the dry switch, Green (positive) and White (negative) are the power wires for the LED. Power. Use color code matching and install in parallel when installing several of these devices. For gen1 controllers use the green connectors supplied to plug into the corresponding sockets inside the controller. For gen2 controllers, use the harnesses provided.
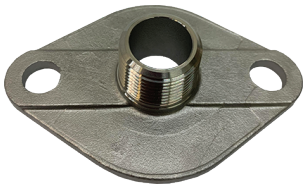

SPECIFICATIONS

Part Number	HR-S-17LED
Product Description	Single Control Momentary Contact Rocker Toggle Switch with Red LED
Size	65mm x 32mm x 38mm
Function	Touch panel light wall switch with LED indicator
Switch Rating	2A
Mechanical Life	10 Years
Face Color	White
LED Color	Red
LED Voltage	2V
Material	pc
Type	Electronic Switch
Wire	22awg 4 wire (22/4 stranded or solid wire)
Feature	Safety
Application	Residential and Commercial

ASM-FL-001
(Flanges Kit)

SPECIFICATIONS

Material	Stainless Steel
Type	Pump Flanges
Lead Free	Yes
Connection Size	3/4"
Connection Type	Threaded
Used With	Pump Series 55, 99, 150

MBKT-19
(Pair of pump brackets)

SPECIFICATIONS

Model	MBKT-19
Type	"L" shape 90° angle
Material	Galvanized Steel
Thickness	14 Gauge
Color	Low Gloss (Satin) Black Powder Coat
Base Length	4.75"
Base Width	2"
Height	2.5"
Two holes for wall mounting - Two holes for pump mounting	

JOB or CUSTOMER:				
ENGINEER:				
CONTRACTOR:				
SUBMITTED BY:		APPROVED BY:		ORDER NO:
Date:		Date:		Date:

ELECTRICAL SCHEMATIC FOR WIRED DEVICES

LED Push Button   LED Push Button   LED Push Button   LED Push Button

SW   SW   SW   SW

LED   LED   LED   LED

Blue

White

Black

Red

Green ① ② White   Black ① ② Red

LED   DRY SW

AUTOHOT CONTROLLER

DHW RETURN LINE DIAGRAM

CWS →   HWS →

HWR →

TEMP. SENSOR

RECIRC. PUMP

HEAT PUMP WATER HEATER

AUTOHOT DEMAND CONTROL

WIRED ACTIVATION SWITCHES