**Engineering Specification**

# All-Purpose Interface (API)

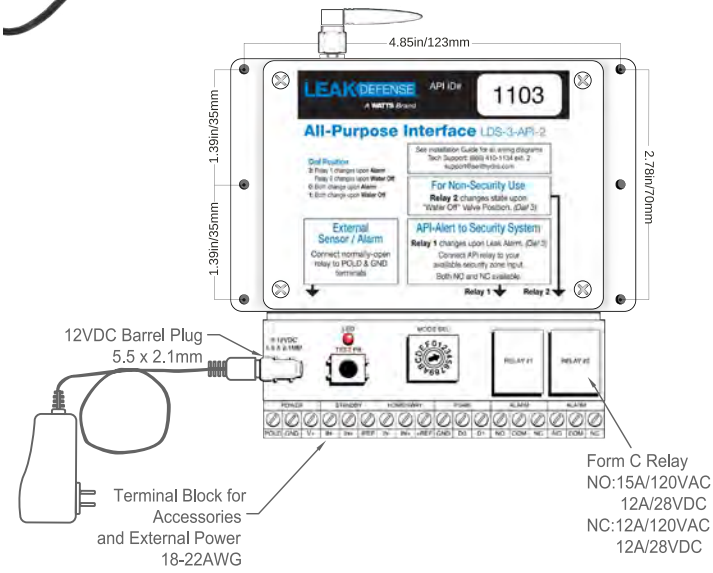
## LDS-3-API-2

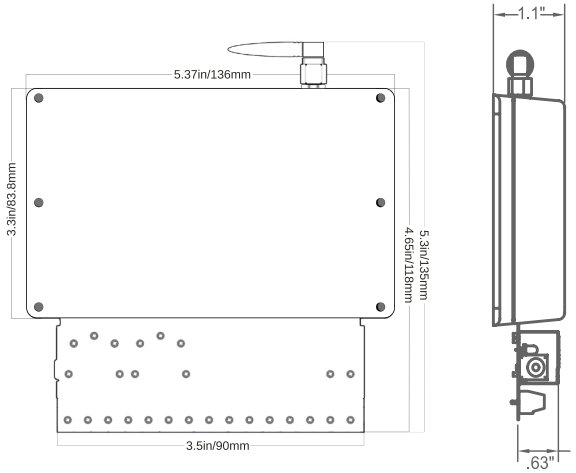
## Various Inputs & Outputs

- Interface with WCP & 3rd-party accessories to complement the performance of the LDS
- Trigger Away or Standby on the LDS
- Accommodate irrigation, pool fills, etc.
- Alarm due to external moisture sensor(s)
- Send alarm signals to existing alarm system(s)






| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 12VDC 1A (6ft cable length) |
| Non-Continuous Max Power draw | 0.5 amp at 120VAC |
| Continuous Max Power Draw | 0.2 amp at 120VAC |
| Power Terminal | Barrel Plug or Terminal Hard-Wired |
| Home/Away Security Interface | Yes |
| Dry Contact Alarm Output Relays | 2 Form-C relays<br>NO: 15Amp/120VAC<br>12Amp/28VDC<br>NC: 12Amp/120VAC<br>12Amp/28VDC |
| Visual Indicators | 1 - Red LED |
| Dial Settings | 3 - Relay 1 changes upon Alarm<br>- Relay 2 changes upon Water Off<br>0 - Both change upon Alarm<br>1 - Both change upon Water Off |
| Communication | Wireless: 433 MHz to WCP/CCM*<br>Wired: RS-485 (TIA/EIA-485) |
| Cable Specification | Belden 2413F (Plenum),<br>2412F (Riser), 2149A (Outdoor),<br>OSP6F (Underground) or equivalent |
| Wireless/RF Range | ~100' If unobstructed |
| Dry Contact Alarm Input | Yes (Non-Latching) |
| Irrigation Interface | Yes |
| Regenerating Water Filter/ Softener Interface | Yes |
| Well Pump/Recirculation Pump Interface | Yes |
| Standby Timer Interface | Yes |
| Mounting | Panel/wall mounting |

*Wireless Control Panel / Commercial Control Module

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# General-Purpose Interface (GPI)

## LDS-3-GPI

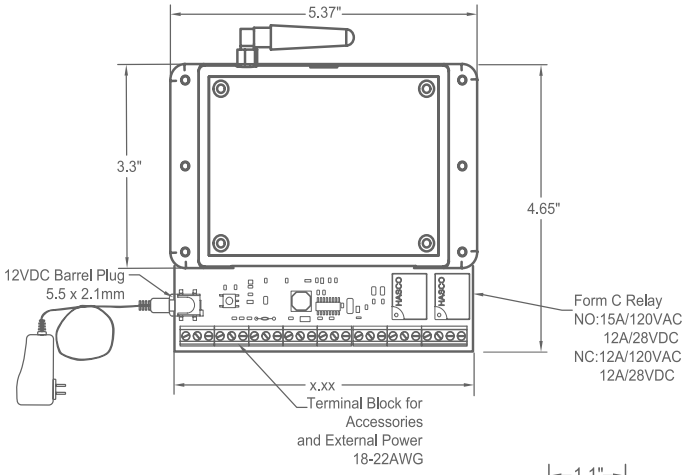
## Custom Sensors

- Custom I/O or sensor needs
- Specialized sensor requirements
- Trigger Away or Standby on the LDS(s)
- Accommodate irrigation, pool fills, etc.
- Alarm due to external moisture sensor(s)
- Send alarm signals to existing alarm system(s)




| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 12VDC 1A (6ft cable length) |
| Non-Continuous Max Power draw | 0.5 amp at 120VAC |
| Continuous Max Power Draw | 0.2 amp at 120VAC |
| Power Terminal | Barrel Plug or Terminal Hard-Wired |
| Home/Away Security Interface | Yes |
| Dry Contact Alarm Output Relays | 2 Form-C relays<br>NO: 15Amp/120VAC<br>12Amp/28VDC<br>NC: 12Amp/120VAC<br>12Amp/28VDC |
| Visual Indicators | 1 - Red LED |
| External Sensor inputs | Yes |
| Sensor Application | Remote temp/lux/humidity monitoring |
| Custom Alarm Inputs | Yes |
| Communication | Wireless: 433 MHz GPI to WCP/CCM* |
| | Wired: RS-485 (TIA/EIA-485) |
| Cable Specification | Belden 2413F (Plenum),<br>2412F (Riser), 2149A (Outdoor),<br>OSP6F (Underground) or equivalent |
| Wireless/RF Range | ~100' If unobstructed |
| Dry Contact Alarm Input | Yes |
| Irrigation Interface | Yes |
| Regenerating Water Filter/ Softener Interface | Yes |
| Well Pump/Recirculation Pump Interface | Yes |
| Standby Timer Interface | Yes |
| Mounting | Panel/wall mounting |

*Wireless Control Panel / Commercial Control Module







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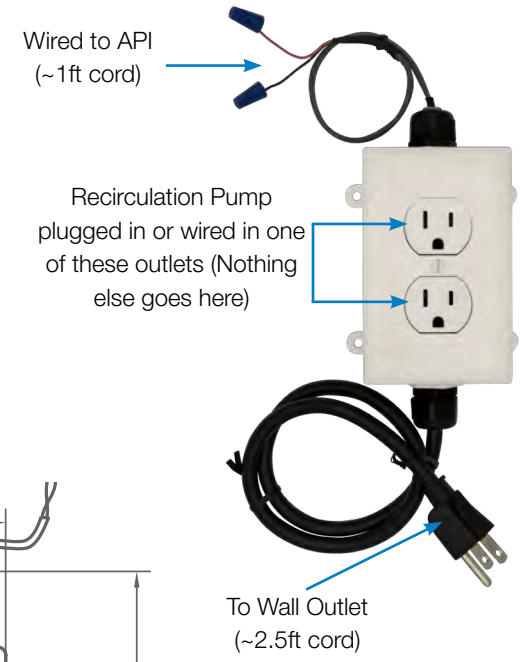
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# Circ Pump Switch

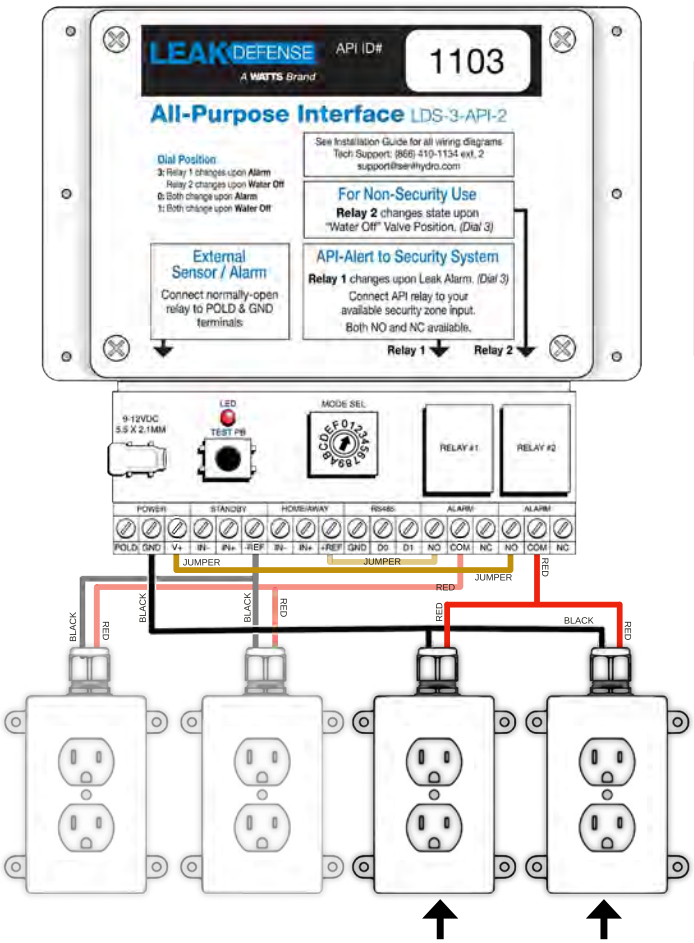
## LDS-CIRC PUMP SWITCH

## Hot Water Pump Safety Shutoff

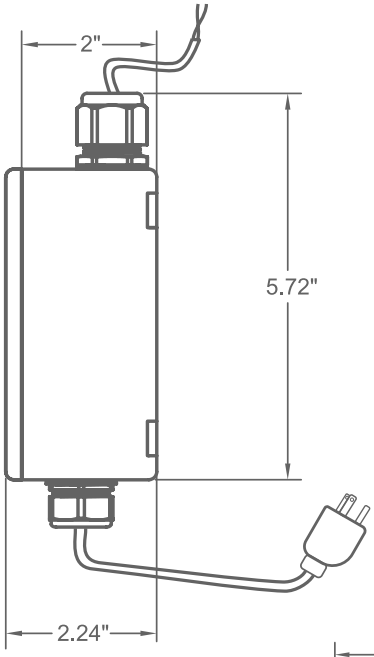
- Automatically shut off hot-water recirculation pumps or whole-house gas insta-hot tankless systems when the LDS Valve closes
- Prevents feeding a potential leak in the recirculation line or preventing the pump from burning out
- 120VAC NEMA 5-15R
- 12 Amp max pump current (per circ pump switch)
- Requires All-Purpose Interface (API) or General-Purpose Interface (GPI), purchased separately
- Up to 4 circ pump switches can be wired to one API/GPI

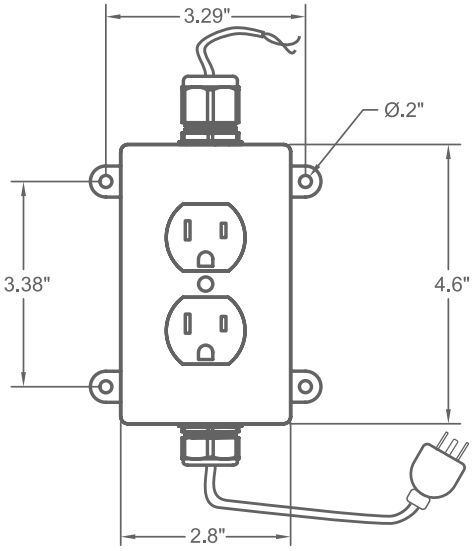



Wiring Diagram




For 1 or 2 units, use the above (darker images).




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# 1, 4, or 6-Hour Standby Timer

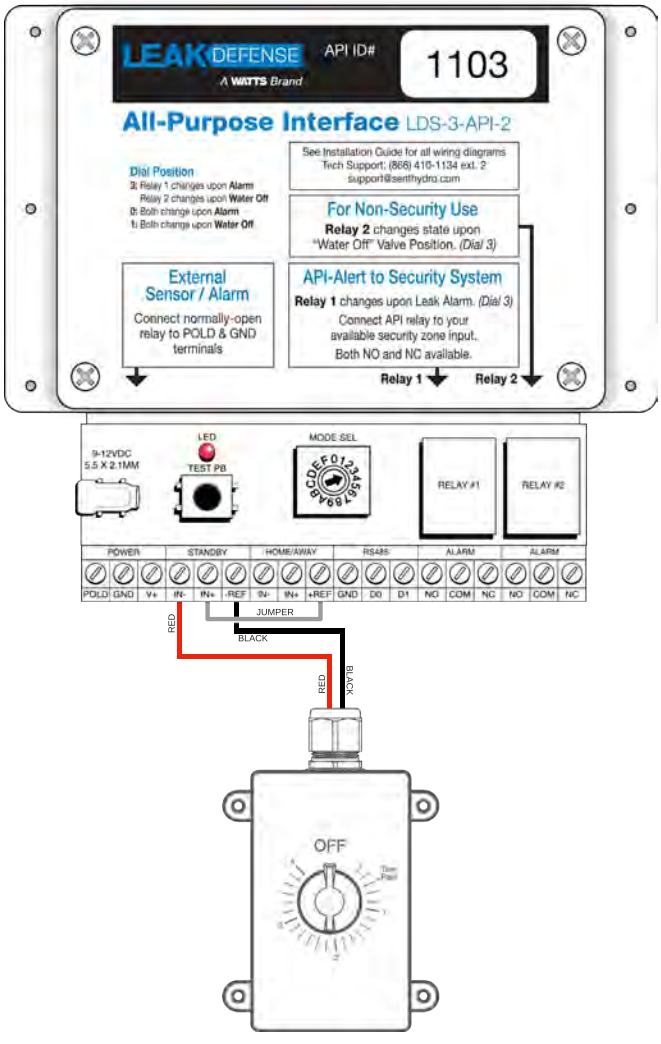
## LDS-1 Hr Timer, LDS-4 Hr Timer, LDS-6 Hr Timer

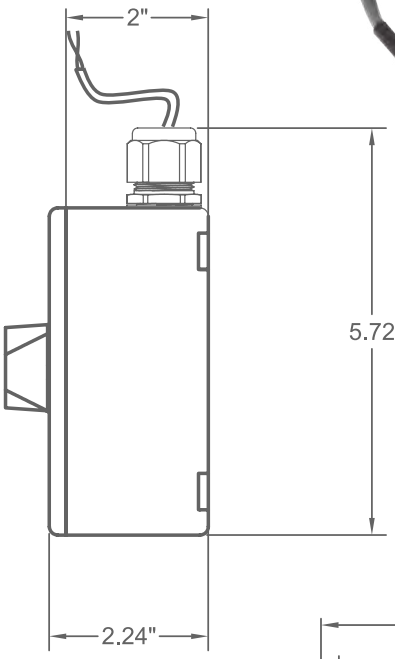
## Exterior Manual Standby

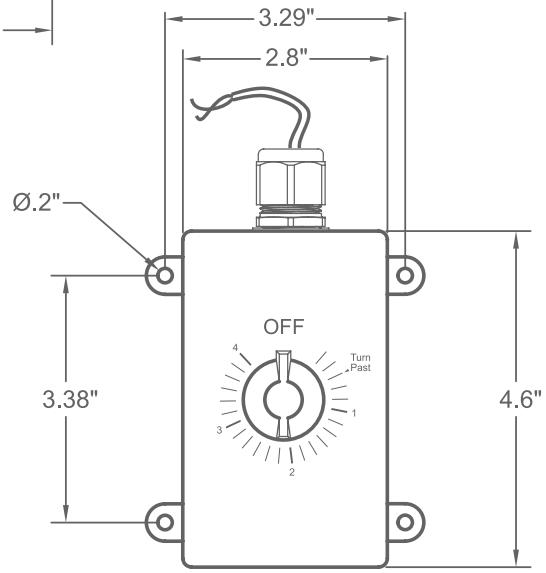
- Puts the LDS into Standby (ignores water flow) when the timer is active
- Used by grounds keepers, landscapers, pool maintenance or anyone without requiring access inside the building or to restricted areas
- Requires All-Purpose Interface (API) or General-Purpose Interface (GPI), purchased separately
- Install API/GPI indoors if possible, or in weatherproof enclosure if installed outdoors

Wired to API
(~1ft cable)




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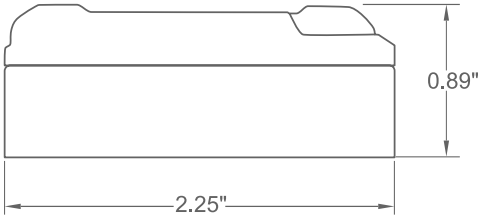
# Solid State Relay (SSR)

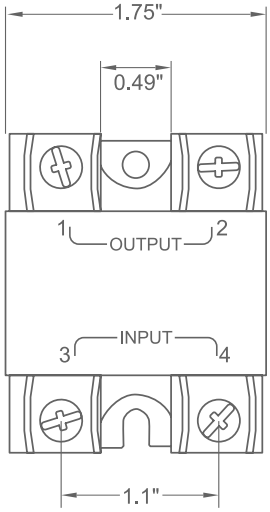
## LDS-SSR

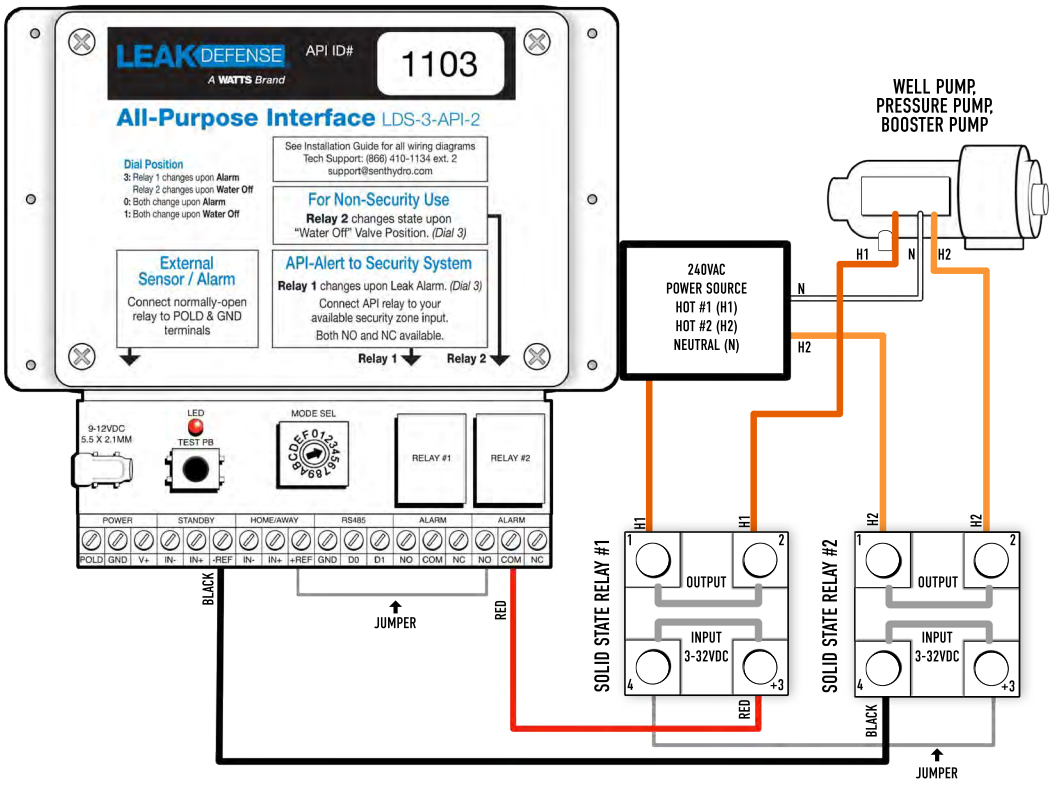
## Pressure & Well Pump Shutoff




- Automatically shut off well pump when the LDS Valve closes or alarms
- Prevents feeding a potential leak in the line between the pump & the LDS and/or pump burnout prevention
- One (1) SSR required for 120V pumps, two (2) SSRs required for one 240VAC well or pressure pump, three (3) required for 240VAC 3-Phase pumps
- Install in appropriate protective enclosure if outdoors
- Requires All-Purpose Interface (API) or General-Purpose Interface (GPI), purchased separately
- 12 Amp max pump current/leg




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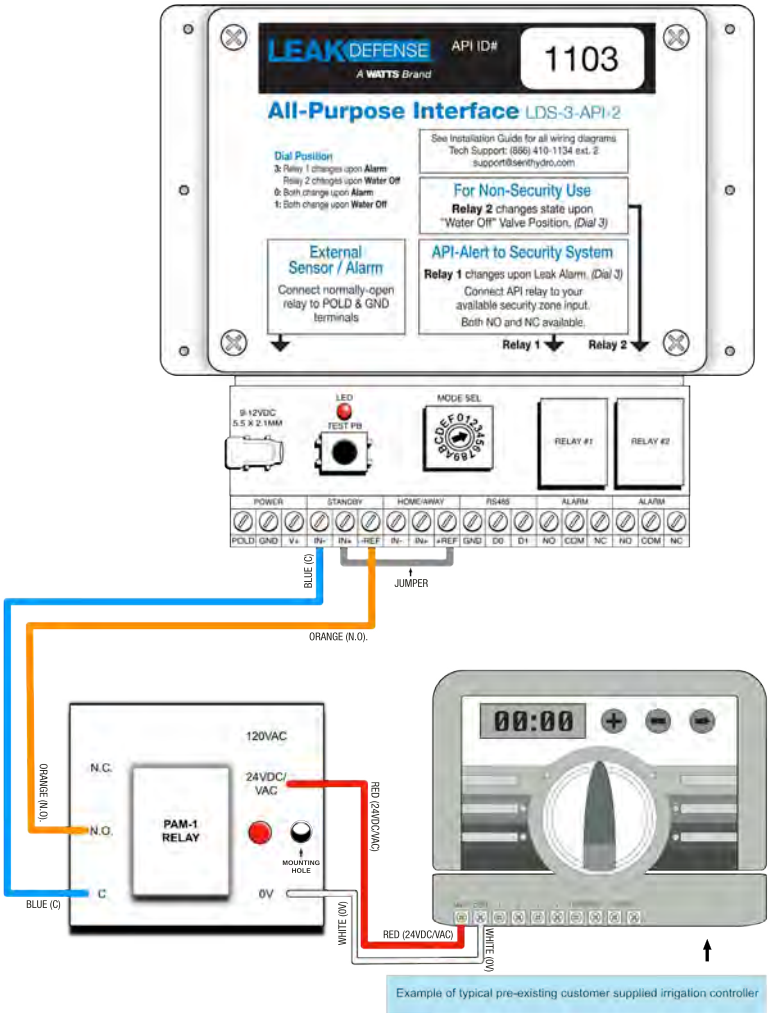
# PAM1 Relay

## LDS-SSU-PAM

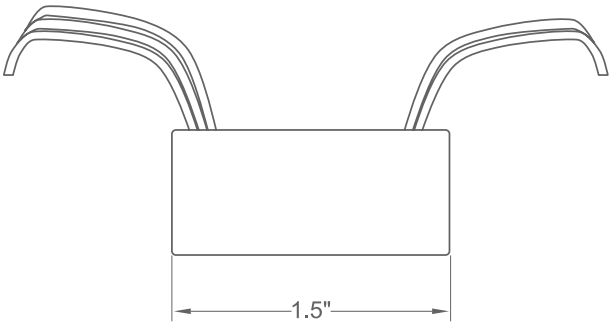
## Irrigation Bypass

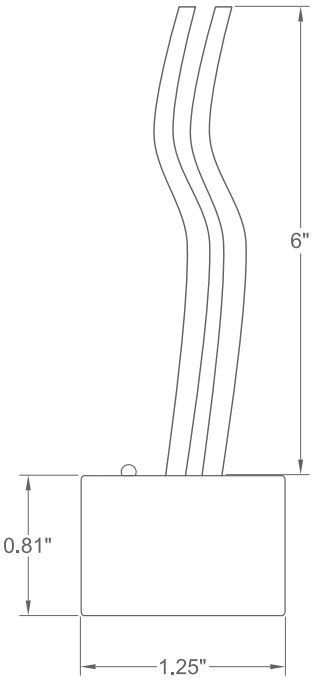


- Used to put the LDS into Standby (ignores water flow) when the irrigation controller is running
- Requires MV/P Terminal (24VAC/VDC output while irrigation is running) on the irrigation controller
- Requires All-Purpose Interface (API) or General-Purpose Interface (GPI), purchased separately
- Typically used if plumber cannot split or separate out the indoor plumbing from the outdoor irrigation pipes




Example of typical pre-existing customer supplied irrigation controller




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# Point of Leak Detector (POLD)

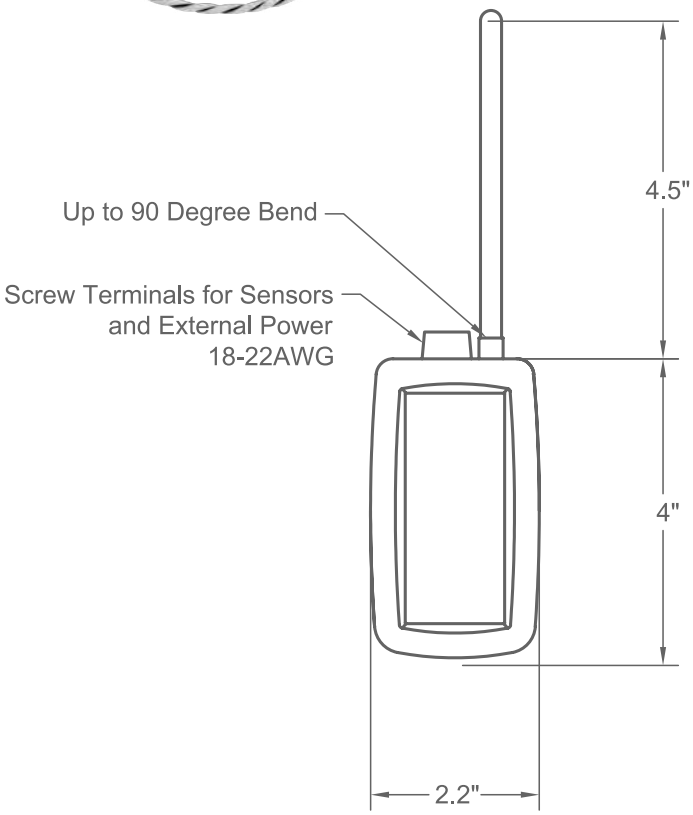
## LDS POLD

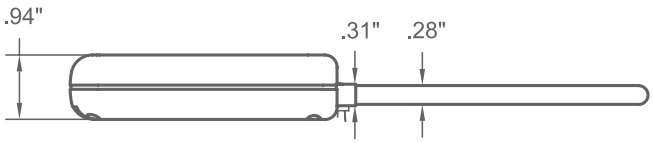
## Outside of the Pipe Detection

- Install under sinks, behind toilets, laundry rooms, water heaters, or any exposed water-pipe or fixture
- Requires either POLD-only WCP/CCM* or hybrid LDS & POLD WCP/CCM*
- Max 15 unique POLD Zones per WCP/CCM*
- Can have multiple POLDs per zone








| Feature List | |
|---|---|
| Standalone Power | 2 AAA batteries (1.5V non-rechargeable) |
| Battery Life | ~2 years |
| Visual Indicators | 1 - Red LED under battery cover |
| RF | 433 MHz radio to panel |
| RF Range | ~100' if unobstructed |
| Non-Latching Alarm | Yes |
| Adjustable Antenna | Yes |
| Single Point Probes | Yes |
| Optional Water Sensing Rope/Cable | Yes - 2', 5', 10' standard lengths |

*Wireless Control Panel / Commercial Control Module

**Model Number Designation**

| LDS | POLD |
|---|---|
| **Product Line** | **Product Name** |
| LDS = Leak Defense System | POLD = Point of Leak Detector |

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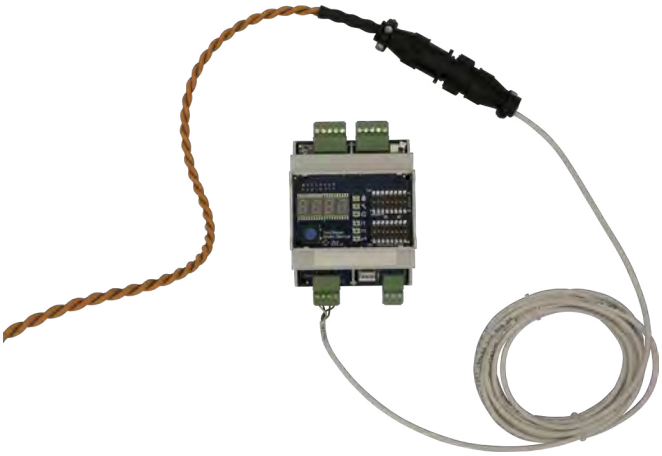
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# Fluid Sensing Cable & Controller

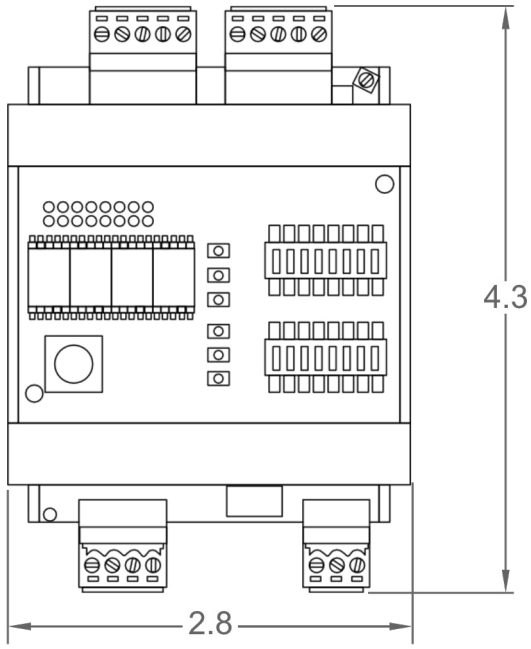
## LDS-3-FSC/Controller

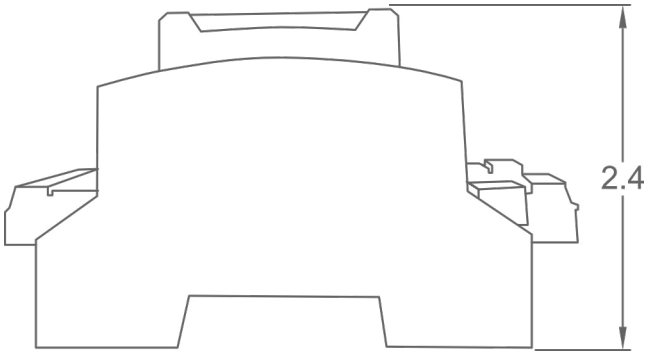
## Outside of the Pipe Leak Locator



- Moisture Sensing with precise location reporting
- Wrap around vertical pipes or under horizontal pipes
- Surround perimeter of critical high value assets
- Multiple simultaneous leaks will display first moisture location when in alarm latching mode
- 3-way Splitter allows for non-linear route for sensing/ non-sensing wire
- Weighted Length Connectors (LDS-3-FSC-W) ensure accurate reading of each window of sensing cable (i.e. 1st floor, 2nd floor, etc.)

| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 24VAC (2ft cable length) |
| Non-Continuous Max Power draw | 0.2 amp at 120VAC |
| Visual Indicators | Multiple LEDs & distance display |
| Connection Type | Terminal block |
| Communication | Wired: RS-485 (TIA/EIA-485)<br>3,000' max from CCM to controller,<br>6,000' w/ repeaters |
| Cable Specification | Belden 2413F (Plenum),<br>2412F (Riser), 2149A (Outdoor),<br>OSP6F (Underground) or equivalent |
| Reset Alarm | Reset button located on top face or through CCM |
| Distance Reading | Yes, set "windows" of sensing cable lengths |
| Cable Break Alert | Yes - break distance given |
| Communication Loss Alert | Yes |
| Alarm Delay | Factory adjustable |
| Cable Input | Requires 15' leader cable and EOL terminator |
| Total Weighted Line Distance | 10,000' sensing & non-sensing |
| Mounting | DIN rail or panel mountable |




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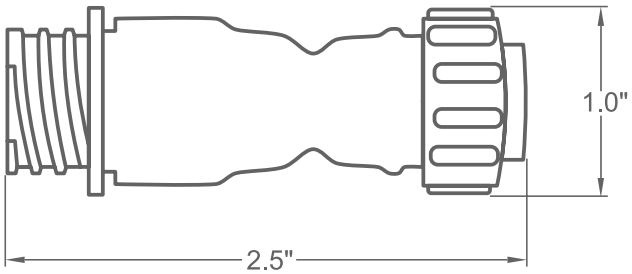
## *Engineering Specification*

# Weighted Length Connector

## LDS-3-FSC-W

## Set Sensing Cable Window






- Weighted Length Connectors ensure accurate reading of each window of sensing cable (i.e. 1st floor, 2nd floor, etc.)
- Simulates 50’ of sensing cable (counts toward 10,000’ total sensing/non-sensing)

| Feature List | |
|---|---|
| Operating Temperature | 32° to 122°F |
| Operating Humidity | 5% to 95% RH non-condensing |

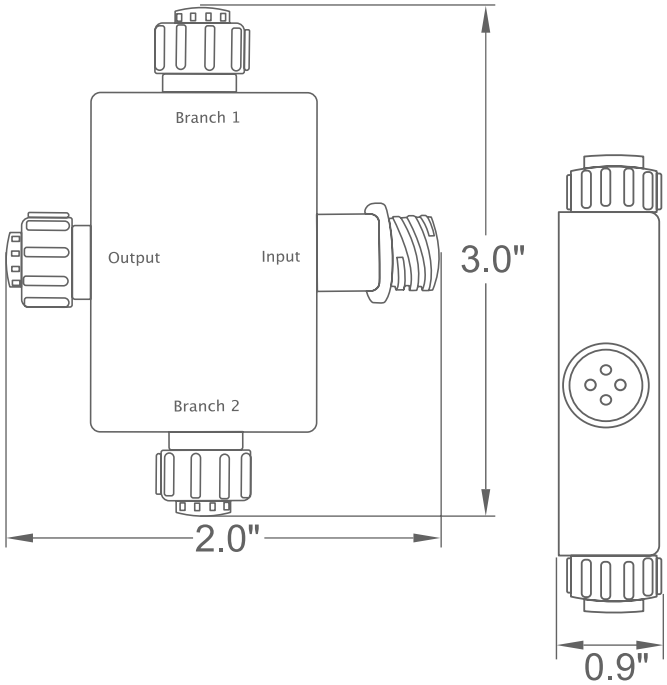
ES-LDS-3-FSC-S

## *Engineering Specification*

# Sensing Cable Splitter

## LDS-3-FSC-S

## Sensing/Non-Sensing Splitter




- Splitter allows for tri-directional runs
- Helps reduce total amount of cable required
- Each branch has a built-in weighted cable connector (50’ for a total of 150’)
- Includes two end-of-line (EOL) terminators




| Feature List | |
|---|---|
| Operating Temperature | 32° to 122°F |
| Operating Humidity | 5% to 95% RH non-condensing |

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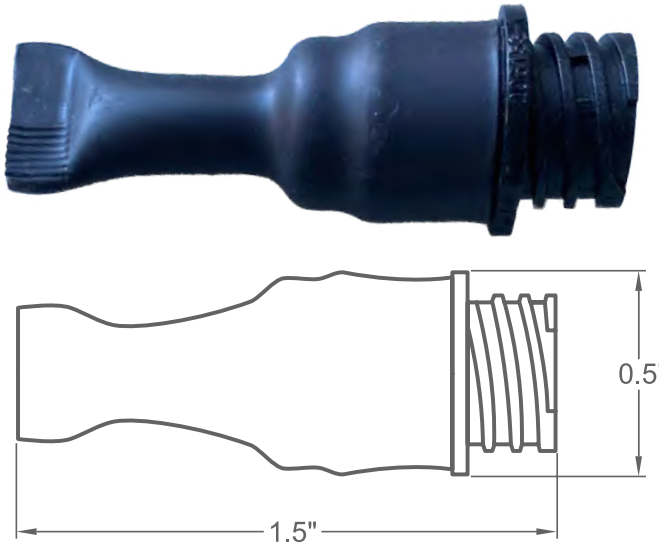
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***Engineering Specification***

# Sensing Cable End of Line

## LDS-3-FSC-EOL

## End of Line Resistor




- Terminates the End of the Line for Sensing/Non-Sensing Cable

| Feature List | |
|---|---|
| Operating Temperature | 14° to 140°F |
| Operating Humidity | 5% to 95% RH non-condensing |



***Engineering Specification***

# Leader Line

## LDS-3-FSC-LEAD

## Leader Cable from Controller



- Sensing cables cannot attach directly to a controller, the 15' leader cables connects the sensing cable to the controller

| Feature List | |
|---|---|
| Operating Temperature | 14° to 140°F |
| Operating Humidity | 5% to 95% RH non-condensing |
| Connector | 4-pin |

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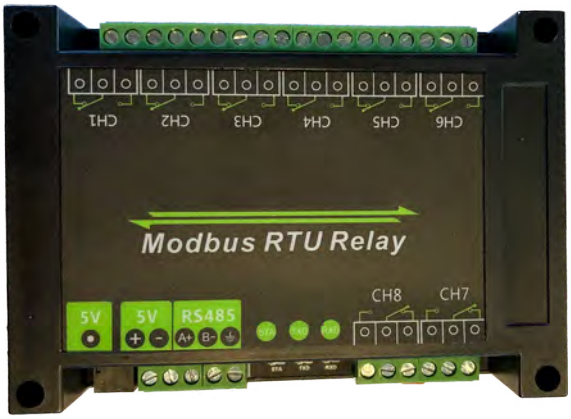
*Engineering Specification*

# CCM Relay Hub

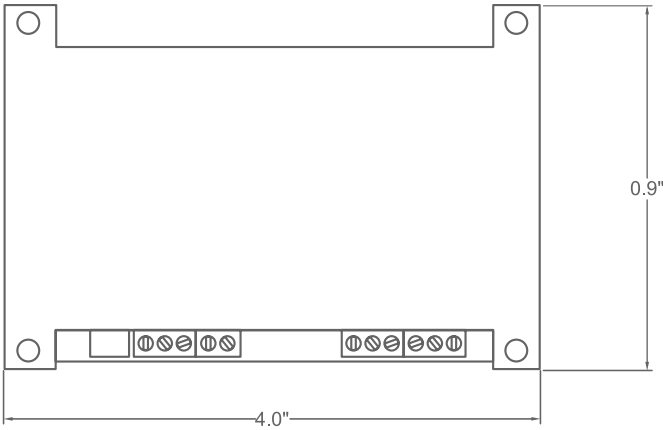
## LDS-CCM-RELAY

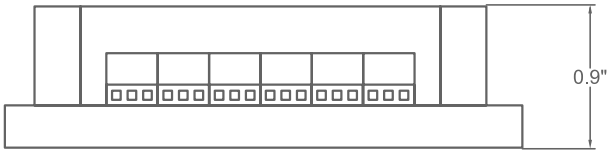
## Relays

- Used for complex pump controls
- Used for solenoid valve controls
- Used for secondary signalling




| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 9VDC/0.5amp |
| Distance | Up to 3,000’ |
| Contact Current Rating | 10 A |
| Coil Voltage | 5 V |
| Relays | 8 Form-C |
| Communication | Wired: RS-485 (TIA/EIA-485) |
| Cable Specification | Belden 2413F (Plenum),<br>2412F (Riser), 2149A (Outdoor),<br>OSP6F (Underground) or equivalent |
| Mounting | Wall/panel mounting |
| Relay Event/State Usage | 1/2: Close on Alarm<br>3/4: Close on water Off<br>5/6: Close for 2nd Valve Interface<br>7/8: Future |




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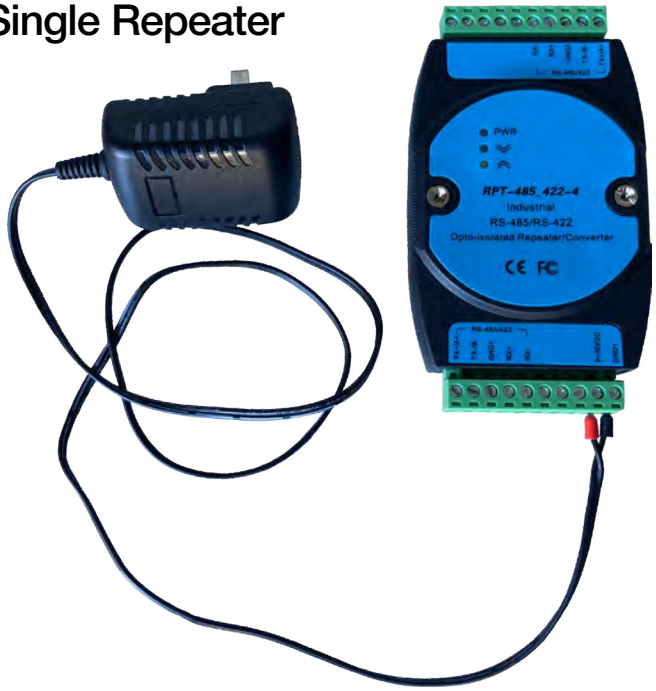


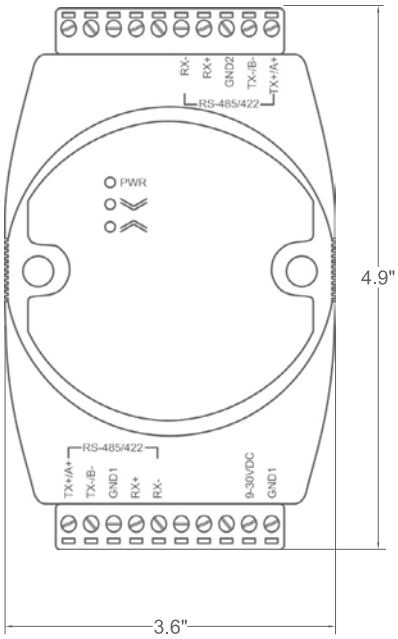
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# RS485 Repeater-Single

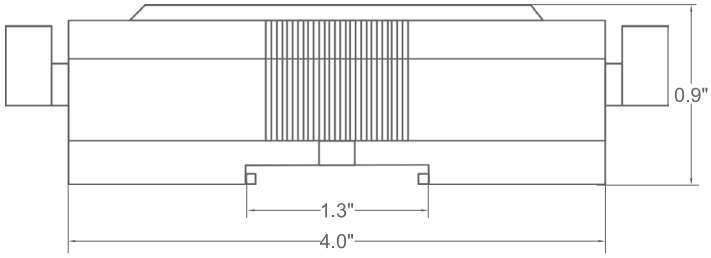
## CLDS-RS485-R1

## Single Repeater




- Allows for parallel runs off main RS485 line, i.e. main line running up stacks with repeaters allowing for horizontal runs on each floor for LDSs or GPIs
- Reduce the amount of cable that needs to be run and electronically isolates branches from each other
- Extends the effective RS485 range 3,000' off the repeater (not stackable)




| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 9VDC/0.5amp (~3ft cable) |
| Distance | Up to 3,000' |
| Connectors | 2x 10-way terminal block |
| Operating Temp | -40F to 185F |
| Operating Humidity | Up to 90% RH (no condensation) |
| Mounting | Direct DIN-rail or wall/panel mounting |

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



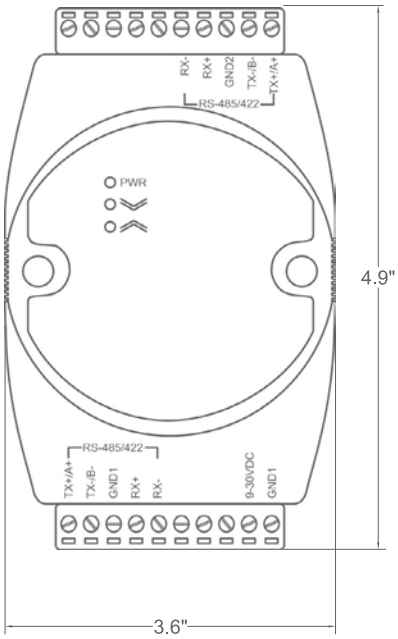
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# RS485 Repeater-4-Way

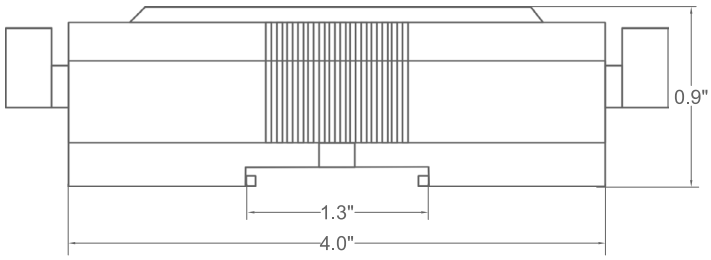
## CLDS-RS485-R4

## 4-Way Repeater




- Allows for parallel runs off main RS485 line, i.e. main line running up stacks with repeaters allowing for horizontal runs on each floor for LDSs or GPIs
- Reduce the amount of cable that needs to be run and electronically isolates branches from each other
- Extends the effective RS485 range 3,000' off each branch (not stackable)




| Feature List | |
|---|---|
| Wall Power | NEMA 5-15R 120VAC |
| Transformer | NEMA 1-15P<br>IN: 120VAC<br>OUT: 9VDC/0.5amp (~3ft cable) |
| Distance | Up to 3,000' |
| Connectors | 2x 10-way terminal block |
| Operating Temp | -40F to 185F |
| Operating Humidity | Up to 90% RH (no condensation) |
| Mounting | Direct DIN-rail or wall/panel mounting |

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**NOTES:**


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