DESCRIPTION
Impeller Model A1017 and Model A1022 surge suppressors are hybrid devices employing gas-filled surge voltage protectors to handle large surge currents, and avalanche type silicon devices for extremely rapid response. Model A1017 is provided for outdoor use where exposure to standing water, rain or spray is expected, and for indoor use where fluid splash, hosedown cleaning or other exposure to fluids may occur. Model A1022 is only for use mounted within a NEMA 4, or better enclosure, or behind a watertight panel. Both suppressors are designed to protect the family of Impeller two-wire flow sensors and their associated electronic instrumentation against substantial surge currents. The suppressors protect against surges categorized by IEEE Specification C62.41.

The Line side of the suppressors are connected to the cable between the sensor and the electronic display or other device being protected. The Line is the exposed, vulnerable part of the total system, and is typically the entry point of the surge.

The Load side of the surge suppressor is connected to the protected device.

The Ground lead or terminal is connected to ground. The lead must be kept as short as possible and should not exceed 12 in. (304 mm) in length. #12 stranded wire is required. The Ground lead must be connected to the power supply ground for instruments connected to external power sources, and to an adequate grounding rod at the sensor, as shown in the wiring diagrams. It is imperative that these wiring practices be carefully followed when grounding the suppressors or their effectiveness is substantially reduced.

ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamping Voltage</td>
<td>15V</td>
</tr>
<tr>
<td>Series Resistance</td>
<td>2.4 Ω</td>
</tr>
</tbody>
</table>

CONNECTIONS

Model A1017

<table>
<thead>
<tr>
<th>Side</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Side</td>
<td>Red and black 18 in. (457.20) leads PVC insulated; green (grounding) 12 in. (304.80 mm) PVC insulated</td>
</tr>
<tr>
<td>Line Side</td>
<td>Red and black 48 in. (1219.20 mm) leads PVC insulated</td>
</tr>
</tbody>
</table>

Model A1022

<table>
<thead>
<tr>
<th>Side</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Side</td>
<td>Screw Terminals, #6-32, one for each two connections to load, and one connection to load ground</td>
</tr>
<tr>
<td>Line Side</td>
<td>Two Screw Terminals, #6-32, one for each two lines plus shield in transmitting cable</td>
</tr>
</tbody>
</table>

WIRING RECOMMENDATIONS

IMPORTANT
Before wiring the suppressors, review the appropriate wiring diagram attached, to ensure that the suppressors are wired properly.

• Review the wiring diagrams applicable to your installation.
• Make sure that the suppressor is mounted in a location that permits making the Ground connection of the suppressor directly to the ground reference for the instrument being protected: (for Model A1017) without splicing extensions to the 12 in. (304.80 mm) flying leads or (for Model A1022) with a #12 stranded wire no longer than 12 in. (304.80 mm) (shorter is better).
• Make sure that the sensor or instrument leads are connected to the Load side of the suppressor, and the interconnecting cable only is connected to Line. Carefully observe the recommendations relating to shield (“bare”) wire connections.
• Do not dress or bundle wiring on the Load side with that on the Line side; avoid running the wire bundles in close proximity with each other to avoid flashover between conductors in the event of a high voltage surge. The surge suppressor can only protect against surges that enter the wiring system on the Line side.

If the above instructions are carefully followed, the probability that the users system will be severely damaged or that data will be lost in the event of a nearby lighting strike will be significantly reduced. However, no guarantee can be given that the system or the data stored therein will survive every potential case of a nearby strike.
**WIRING DIAGRAMS**

**320 DCLS**

DATA INDUSTRIAL Model 320
With Line Surge Suppression
Using SINGLE SHIELDED TWISTED PAIR

**320 LS**

DATA INDUSTRIAL Model 320
With Line Surge Suppression
Using SINGLE SHIELDED TWISTED PAIR

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**NOTE 1**

If multiple twisted pair cabling is used to connect more than one (1) sensor to more than one (1) instrument, CONNECT BARE (DRAIN) WIRE ONLY AT INSTRUMENT END! CONNECT BARE (DRAIN) WIRE TO EARTH GROUND ONLY. DO NOT CONNECT TO BLACK LEAD FROM SUPPRESSOR.

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**DATA INDUSTRIAL Model 320**

**Hubble IG5252-S or equiv.**

**DI Plug-in Power Supply A1026**

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**IMPORTANT!** Locate DI A1017 & A1022 Line Surge Suppressors as close as possible to terminations of GREEN lead. DO NOT splice extensions to this lead, as this will seriously reduce the effectiveness of the device.

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**NOTE 1**

If multiple twisted pair cabling is used to connect more than one (1) sensor to more than one (1) instrument, CONNECT BARE (DRAIN) WIRE ONLY AT INSTRUMENT END! CONNECT BARE (DRAIN) WIRE TO EARTH GROUND ONLY. DO NOT CONNECT TO BLACK LEAD FROM SUPPRESSOR.

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**DATA INDUSTRIAL Model 200 Series Flow Sensor**

**Ground Rod**

**110 VAC Supply**

**White**

**Black**

**Ground**

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**DATA INDUSTRIAL Model 200 Series Flow Sensor**

**Ground Rod**

**110 VAC Supply**

**White**

**Black**

**Ground**
Wiring Diagrams

3000 LS

DATA INDUSTRIAL Series 3000
With Line Surge Suppression
Using SINGLE SHIELDED TWISTED PAIR

NOTE 1. If multiple twisted pair cabling is used to connect more than one (1) sensor to more than one (1) instrument, CONNECT BARE (DRAIN) WIRE ONLY AT INSTRUMENT END; CONNECT BARE (DRAIN) WIRE TO EARTH GROUND ONLY. DO NOT CONNECT TO BLACK LEAD FROM SUPPRESSOR.

IMPORTANT! Locate DI A1017 & A1022 Line Surge Suppressors as close as possible to terminations of GREEN lead. DO NOT splice extensions to this lead, as this will seriously reduce the effectiveness of the device.

DATA INDUSTRIAL
200 Series Flow Sensor

DI A1017 or A1022
A1017 - For use outdoors, or where exposed to water, either standing, spray or hose-down
A1022 - For use in NEMA 4 or 4X enclosures, or for water protected panel mounting only

NOTE 1. If multiple twisted pair cabling is used to connect more than one (1) sensor to more than one (1) instrument, CONNECT BARE (DRAIN) WIRE ONLY AT INSTRUMENT END; CONNECT BARE (DRAIN) WIRE TO EARTH GROUND ONLY. DO NOT CONNECT TO BLACK LEAD FROM SUPPRESSOR.

Hubble IGS252-S or equiv.

110 VAC Supply

POWER

DI Plug-in Power Supply A1028

NOTE 1. If multiple twisted pair cabling is used to connect more than one (1) sensor to more than one (1) instrument, CONNECT BARE (DRAIN) WIRE ONLY AT INSTRUMENT END; CONNECT BARE (DRAIN) WIRE TO EARTH GROUND ONLY. DO NOT CONNECT TO BLACK LEAD FROM SUPPRESSOR.
Surge Suppressor Model A1017 and A1022