

Surge Suppressor Application Note

General Description:

Data Industrial 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 Data Industrial two (2)-wire flow sensors and their associated electronic instrumentation against substantial surge currents. The suppressors will protect against surges categorized by IEEE Specification 587, Category B (short branch circuits).

PRODUCTS	
200	✓
4000	
310	
320	
600	✓
800	
1400	
1500	✓
2100	
2200	
2300	
HTT	
WSS	

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 in no case should it exceed 12 inches in length. #12 wire, stranded 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 will be substantially reduced.

Electrical Specifications:

Clamping Voltage..... 15V
Series Resistance..... 2.4 Ohms

Connections:

Model A1017 - Load Side..... Red and Black 18 in. leads PVC insulated; Green (grounding) 12 in. PVC insulated

Line Side..... Red and Black 48 in. leads PVC insulated

Model A1022 - Load Side..... Screw Terminals, #6-32, one (1) for each two (2) connections to load, and one (1) connection to load ground

Line Side..... Screw Terminals, #6-32, two (2), one for each two (2) lines plus shield in transmitting cable

Wiring Recommendations:

IMPORTANT - BEFORE WIRING SUPPRESSORS, the installer must review the appropriate wiring diagram attached, to ensure that the suppressors are wired properly.

1. Review the wiring diagrams applicable to your installation.
2. Ensure 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 inch flying leads
or
(for Model A1022) with a #12 stranded wire no longer than 12 inches (shorter is better)
3. Ensure 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.
4. 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.

Warranty

Data Industrial Corporation (the company) warrants to the buyer of this equipment supplied by the company, for the purposes of surge suppression and/or data-line protection, that said equipment will be free of defects in material and workmanship when installed as recommended and under normal use and service, for a period of one year from the date of shipment from the company's factory. The company's obligation under this warranty is and shall be limited to repair or replacement at the factory of such company parts that an authorized employee of the company finds to be defective in material or workmanship under normal use and service. The company reserves the right to satisfy this obligation in full by refunding the purchase price for any such defective equipment. No other remedy (including but not limited to incidental damages for lost profits, lost sales, injury to persons or property, or any other incidental or consequential loss) shall be available to the buyer or user. This foregoing warranty is in lieu of any other warranties expressed or implied, including without limitation, any implied warranty of merchantability or fitness for a particular application or purpose, and any other obligations or liabilities of the company.

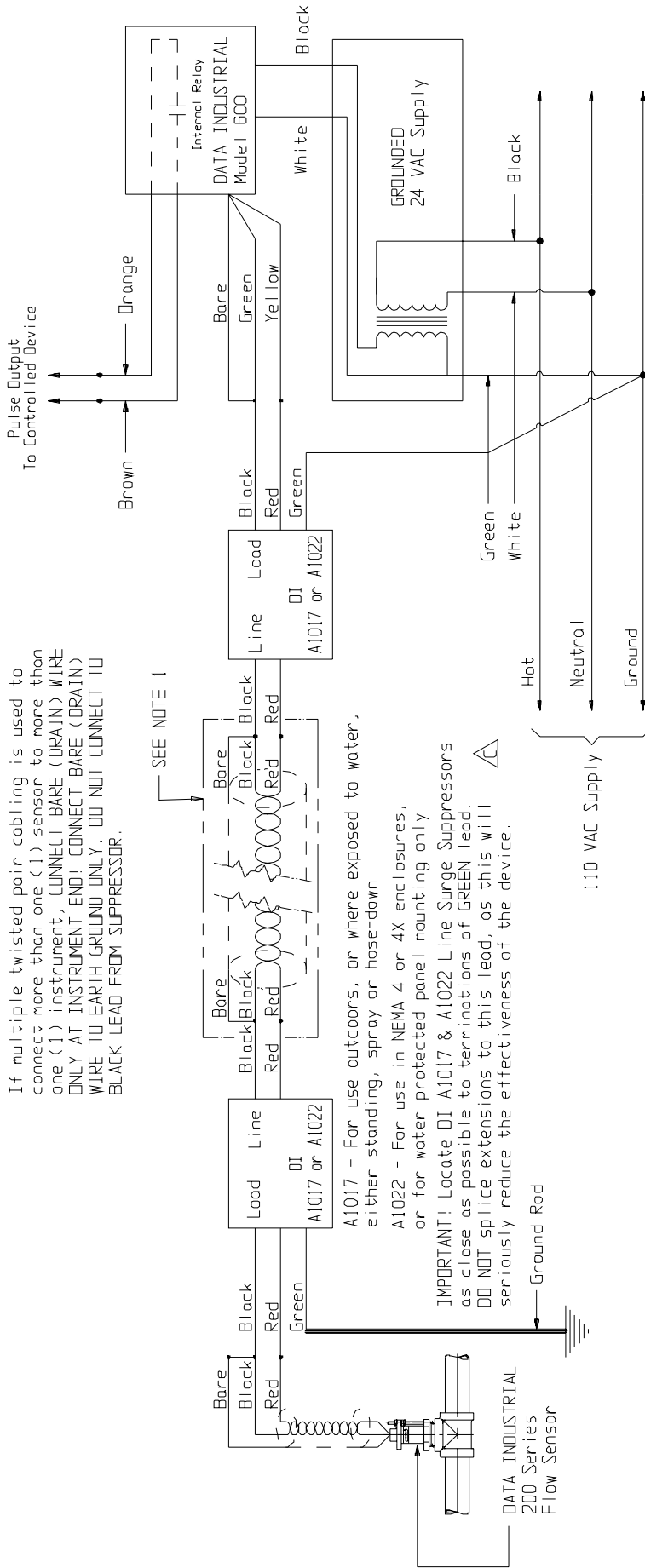
DATA INDUSTRIAL Model 600
With Line Surge Suppression
Using SINGLE SHIELDED TWISTED PAIR

C	ECD 3536	DATE	BY
		2/17/98	R.G.

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.

SEE NOTE 1



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B-06-600-008-C 05/10/90

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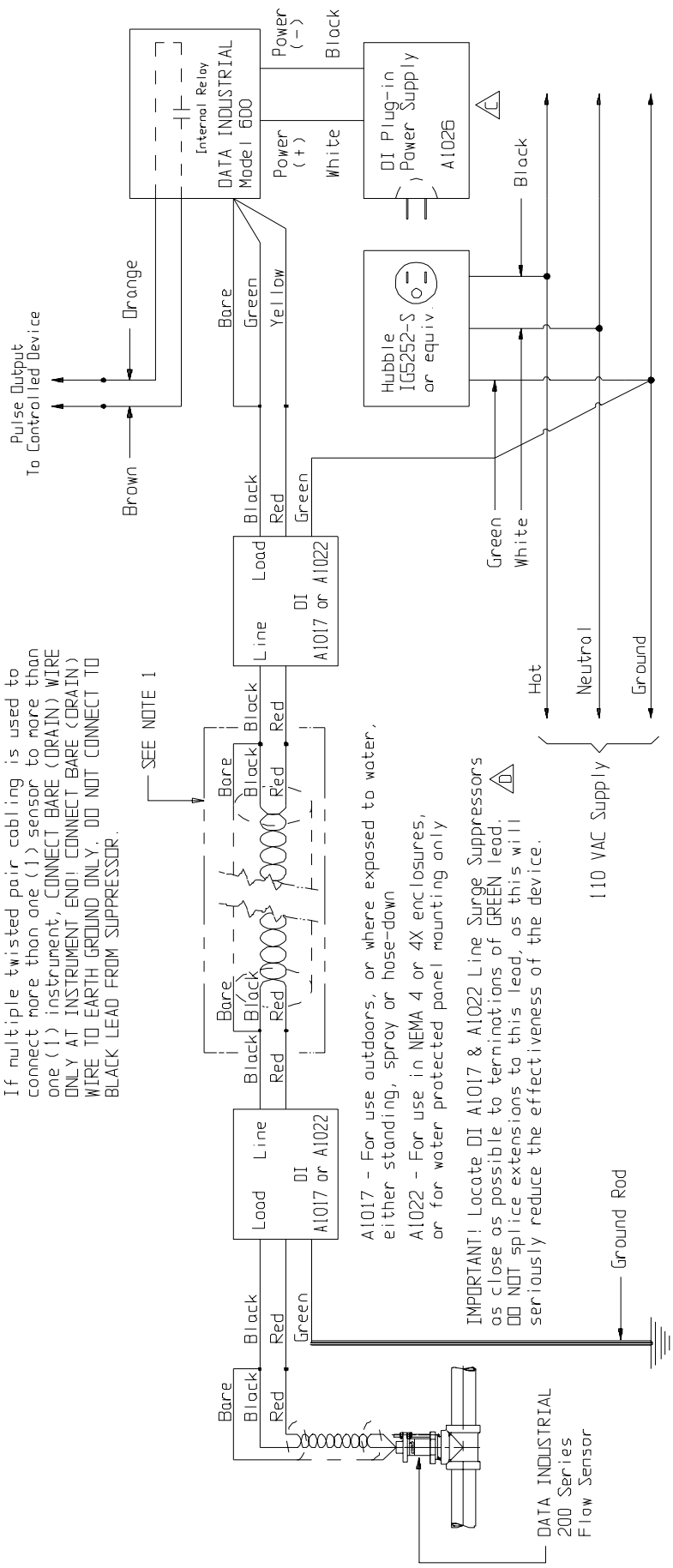
	DATE	BY
C	ECC 3532	2/2/98 R.G.
D	ECC 3536	2/17/98 R.G.

DATA INDUSTRIAL Model 600
With Line Surge Suppression
Using SINGLE SHIELDED TWISTER 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.

SEE NOTE 1



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

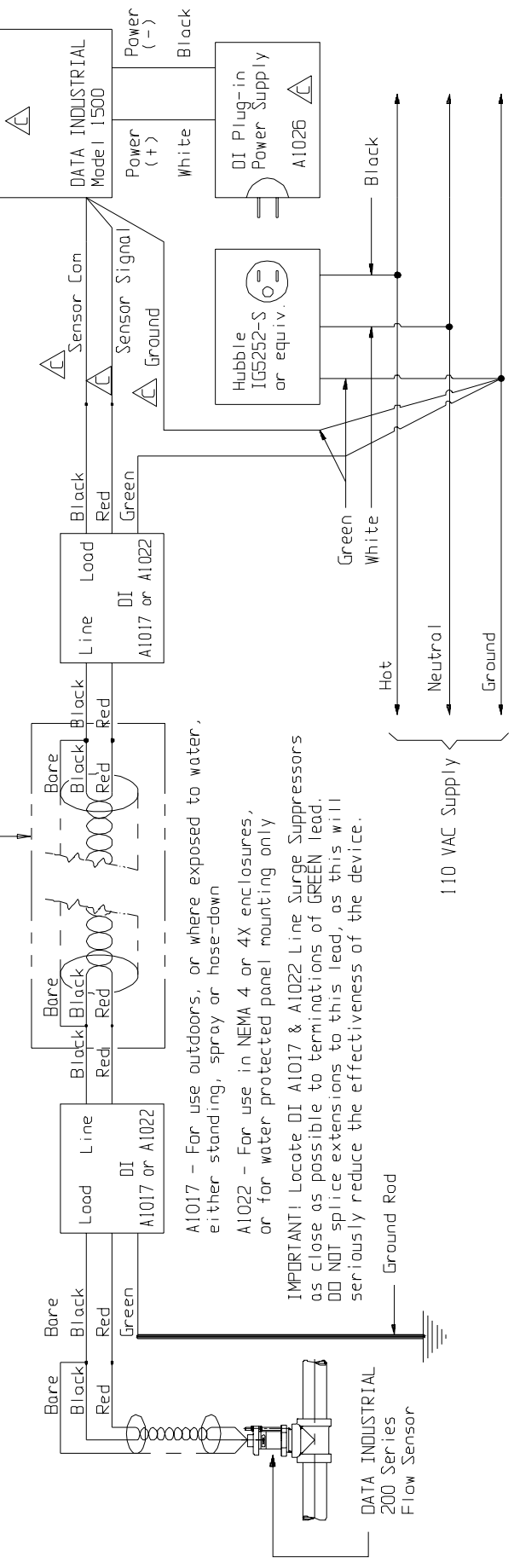
IMPORTANT! Locate DI A1017 & A1022 Line Surge Suppressors as close as possible to terminations of GREEN lead. **DO NOT** splice extensions to this lead, as this will seriously reduce the effectiveness of the device.

		DATE	BY
C	ECO 3532	2/2/98	R.G.

DATA INDUSTRIAL Model 1500
With Line Surge Suppression
Using SINGLE SHIELDED TWISTER PAIR

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SEE NOTE 1



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
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
1500-LS