



Technical Bulletin

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This Technical Bulletin replaces TB-2018150-BW01 Rev3 to include the optional RM Young Barometric Pressure Sensor.

Title: [Connecting the Wind Monitor and the Electronic Barometric Sensor to the SmartScanNG or NG²](#)

Summary: The Southern Technologies Model 2300-220 provides RS-485 terminal connections and an isolated 12 VDC power supply for the Model 0901 Wind Monitor and 61402L Barometric Pressure Sensor by RM Young. Connections to the NG/NG² Defect Detector are with a Dsub-9, straight-through serial cable. Wiring from the 2300-220 Interface to the RM Young weather instrument(s) is terminal-per-terminal compatible.

Critical (Affects safe operation of the system)

Informational

Distribution List:

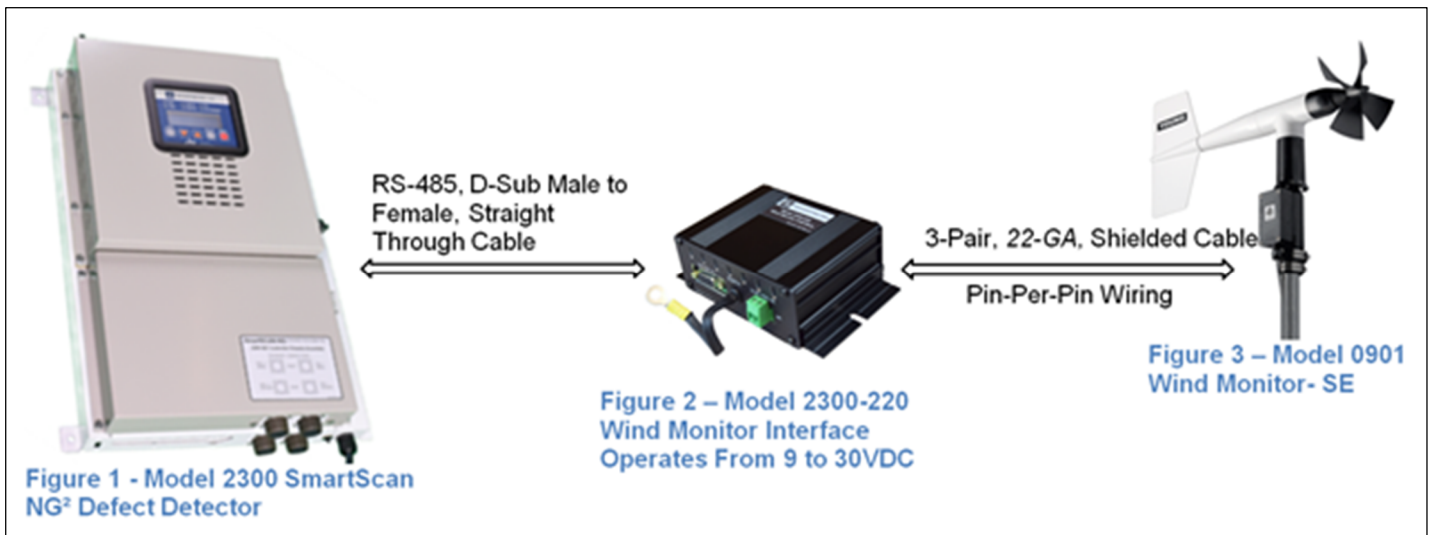
[Southern Technologies Model 2300-220 Wind Monitor Interface](#)



The **Model 2300-220 Wind Monitor Interface** conveniently connects the RM Young Wind Monitor and Electronic Barometric Sensor to the SmartScanNG or SmartScanNG² Defect Detector System. The unit provides the following.

- A regulated and isolated 12 VDC supply to the weather instruments.
- 9VDC to 30VDC input voltage expands the operating range of the Wind Monitor.
- Multi-stage surge protection for the power supply and RS-485 signals.
- 3KV of power supply isolation from the battery.

- Additional 12-Volt output power terminals can supply applications such as High/Wide detector sensors.
- Rugged, compact design for easy installation and maintenance.
- A Dsub-9 female connector connects with a straight-through cable to the defect detector's RS-485 port, and the wiring terminals are labeled to match the terminals of the RM Young Wind Monitor and Barometric Pressure Sensor for simple installation.
- A grounding strap provides a low impedance path to earth ground for surge currents and bleeds off static electricity from the Wind Monitor.
- A green status LED indicates the +12V power supply output is present.
- Compatible with the RM Young Model 61402L Barometric Pressure Sensor (page-8).

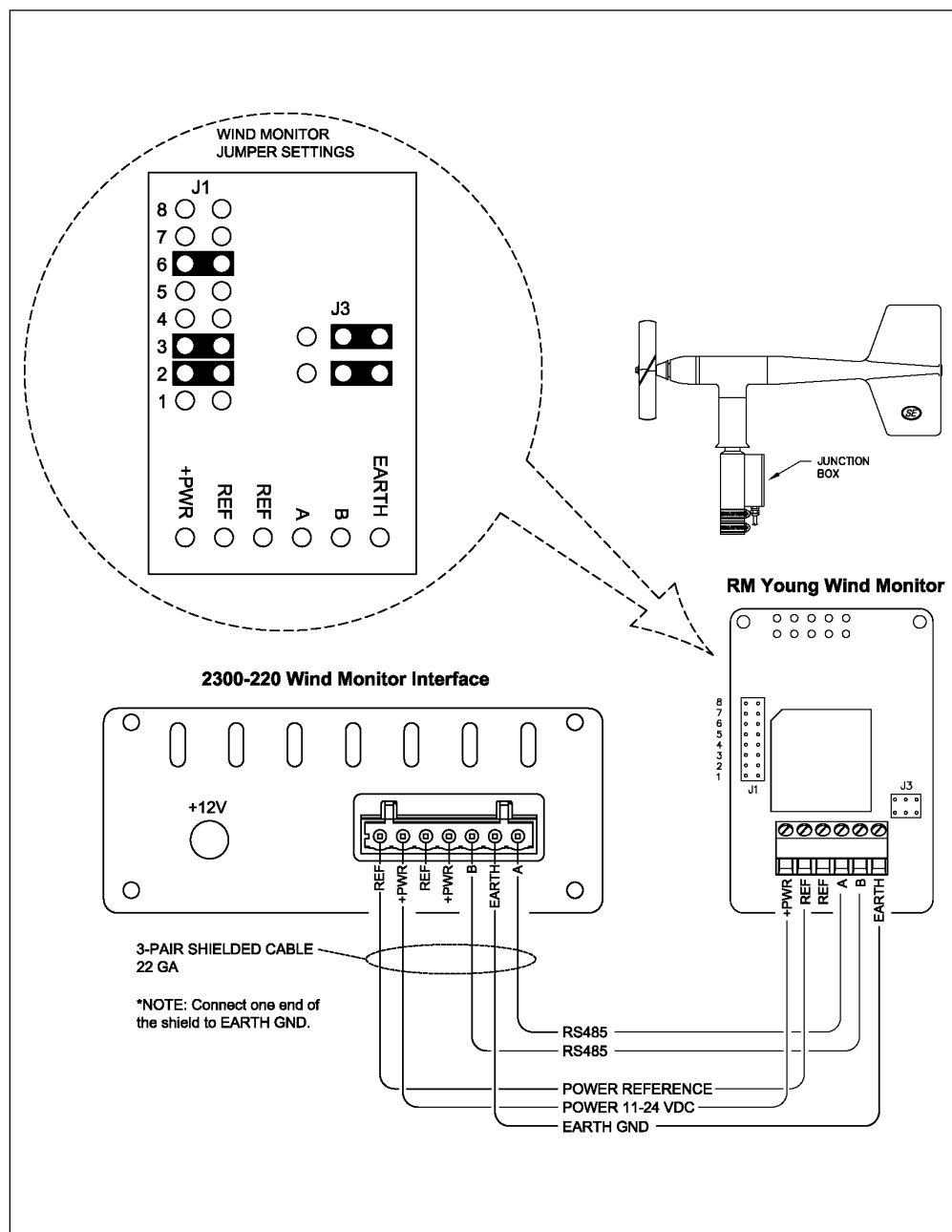


Model 2300-220 Wind Monitor Interface Connections

Wiring Connections From Wind Monitor Interface to RM Young Wind Monitor

2300-220 Wind Monitor Interface	RM Young Wind Monitor
+PWR	+PWR
REF	REF
A	A
B	B
EARTH	EARTH

- Use a twisted pair of wires for +PWR and REF.
- Use a twisted pair of wires for A and B signals.
- Connect one end of the cable's shields to the EARTH terminal on the 2300-220 Wind Monitor Interface. Do not connect the shield to the Wind Monitor.



Wiring Connections From Wind Monitor Interface to Battery (Use 18AWG or 20AWG)

Wind Monitor Interface	Battery (9 to 30 VDC)
+	+
-	-

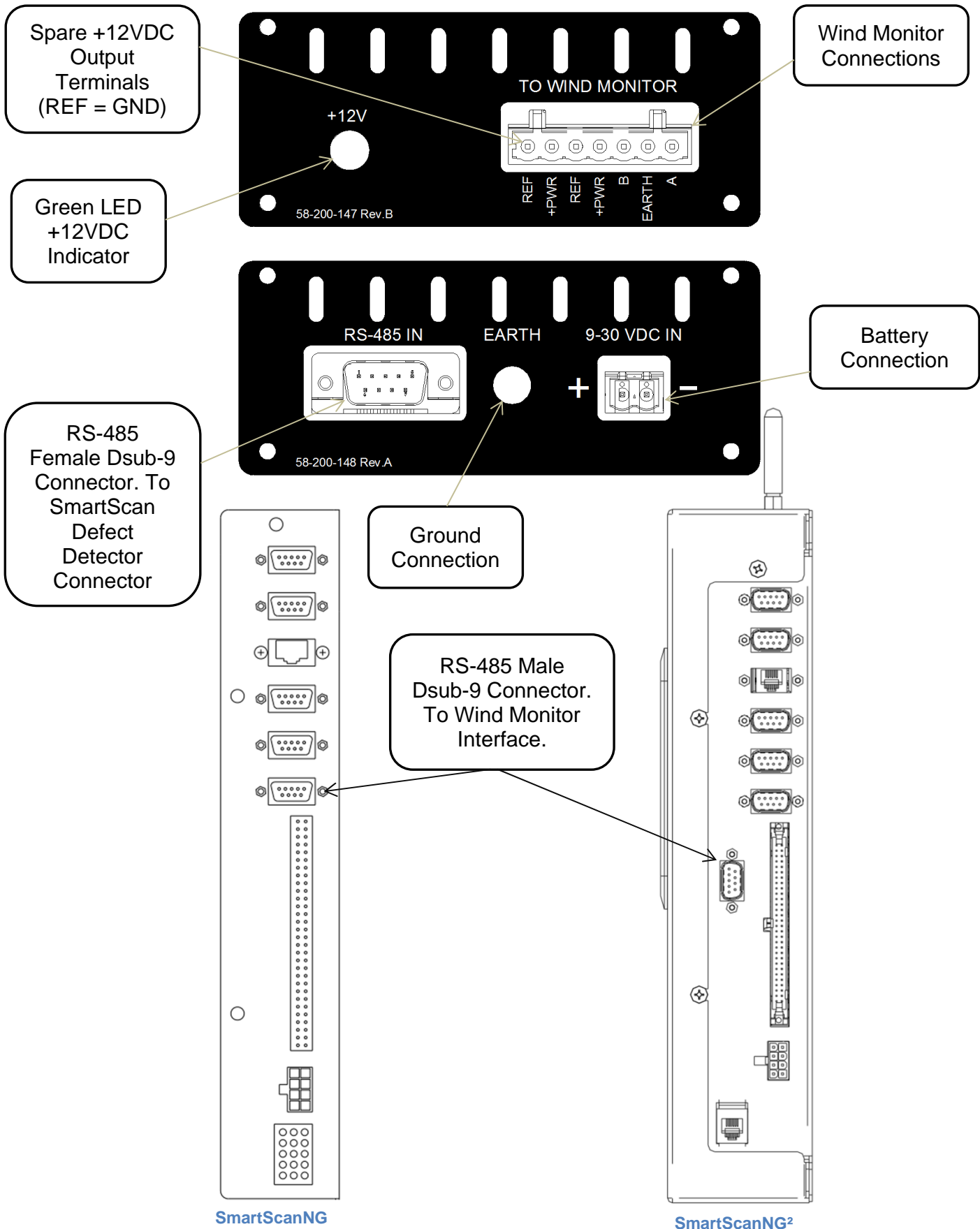
EARTH - Connect the 2300-220 Wind Monitor Interface's integral grounding strap to a grounding location. Use as short of a grounding wire as practicable for your installation.

RS-485 – Use the supplied serial interface cable to connect from the SmartScan defect detector to the 2300-220 Wind Monitor Interface. See next page for port locations.

NG² J3 Jumper Settings for RS-485 Communications

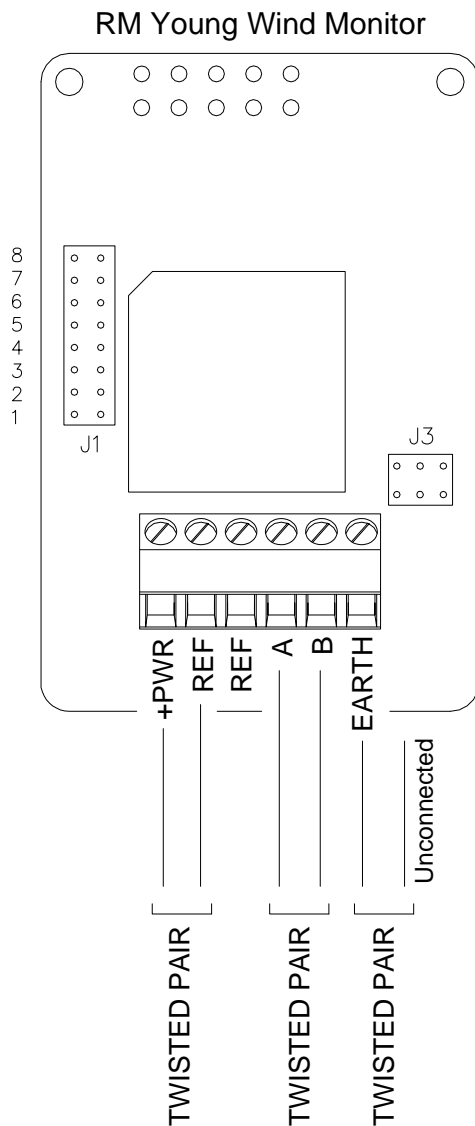
- Power down the detector and take ESD precautions by attaching a ground strap to your wrist.
- Remove the Controller Module cover.
- Locate the pair of jumpers labeled J3 in the upper-left corner of the Controller Module board, just under the bottom-right corner of the serial cable socket labeled "RS-485 PROC-B." A red arrow points to these jumpers in the picture at the right.
- If necessary, move the J3 headers to match the picture at the right. The left-hand header should cover the middle and bottom pins. The right-hand header should cover the top and middle pins.
- Replace the Controller Module cover.
- Power up the system again.





Wire Identification using an Ohmmeter

The RM Young Wind Monitor has five wiring connections: **+PWR**, **REF**, **A**, **B**, and **EARTH**. The following text describes how to use an ohmmeter to identify these wiring connections if the RM Young Wind Monitor is not accessible for wire identification. This document assumes that you are working with an installation using three twisted pairs, but it may also be used to identify wires not organized in pairs. If twisted pairs are employed, one pair is likely **+PWR** and **REF** (+12V and GND); one pair is likely **A** and **B** (data), and the **EARTH** wire is likely in the last pair, which is used to bleed static electricity. The remaining wire is not used and connects to the **EARTH** terminal on the STC Wind Monitor Interface.



Identifying A and B Wires

Please note that these two wires are likely in the same twisted pair. Locate two wires that measure 100 ohms (Ω) to 265 Ω with both polarity connections. The exact measurement occurs regardless of meter lead connections, which is in the range of 100 Ω to 265 Ω . Connect one of the two wires to the **A** terminal and the other wire to the **B** terminal of the Wind Monitor Interface. Reversing these wiring connections does not result in damage. Swap these wires later if the communications test fails.

Ohm Meter Lead Connections	Ohm Reading
Red Meter Lead on A, Black Meter Lead on B	From 100 Ω to 265 Ω
Red Meter Lead on B, Black Meter Lead on A	The same measurement you read in the last step.

Identifying the Power Supply Wires +PWR and REF

Be careful not to touch the connections with your fingers; locate two wires to the wind monitor that read as an open circuit. They may be in the same twisted pair. Now reverse the ohmmeter leads. If you have the correct wires, swapping the meter leads results in a reading that starts roughly between 300 Ω and 350 Ω and slowly increases to around 400 Ω . These readings vary slightly between Wind Monitors because they indicate a charging capacitor. This rising measurement indicates that the red meter lead is on the wire going to the **+PWR** terminal and the black meter lead is on to the wire going to the **REF** terminal. Connect these two wires to their respective terminals on the Wind Monitor Interface. The Wind Monitor Interface has two **REF** terminals and two **+PWR** terminals. These are two identical sets of 12VDC power supply output terminals. So, you may use either one of the **+PWR** and **REF** terminals on the Wind Monitor Interface to power the Wind Monitor. The Wind Monitor is reverse polarity protected, preventing damage if the power supply wires are connected backward.

Ohm Meter Lead Connections	Ohm Reading
Red Meter Lead touching REF, Black Meter Lead touching +PWR.	Open Circuit <i>The measurement is the same as when the meter leads are not connected.</i>
Red Meter Lead on +PWR, Black Meter Lead on REF	Rising resistance meter reading indicates correct meter polarity. <i>Connect the wire touching the red meter lead to +PWR and the wire on the black lead to REF on the wind monitor interface.</i>

Identifying the Earth Wire

One of the remaining wires goes to the **EARTH** terminal, and the other is unused. Twist the two remaining wires together and connect them to the **EARTH** terminal on the Wind Monitor Interface.

RM Young Model 61402L Barometric Pressure Sensor



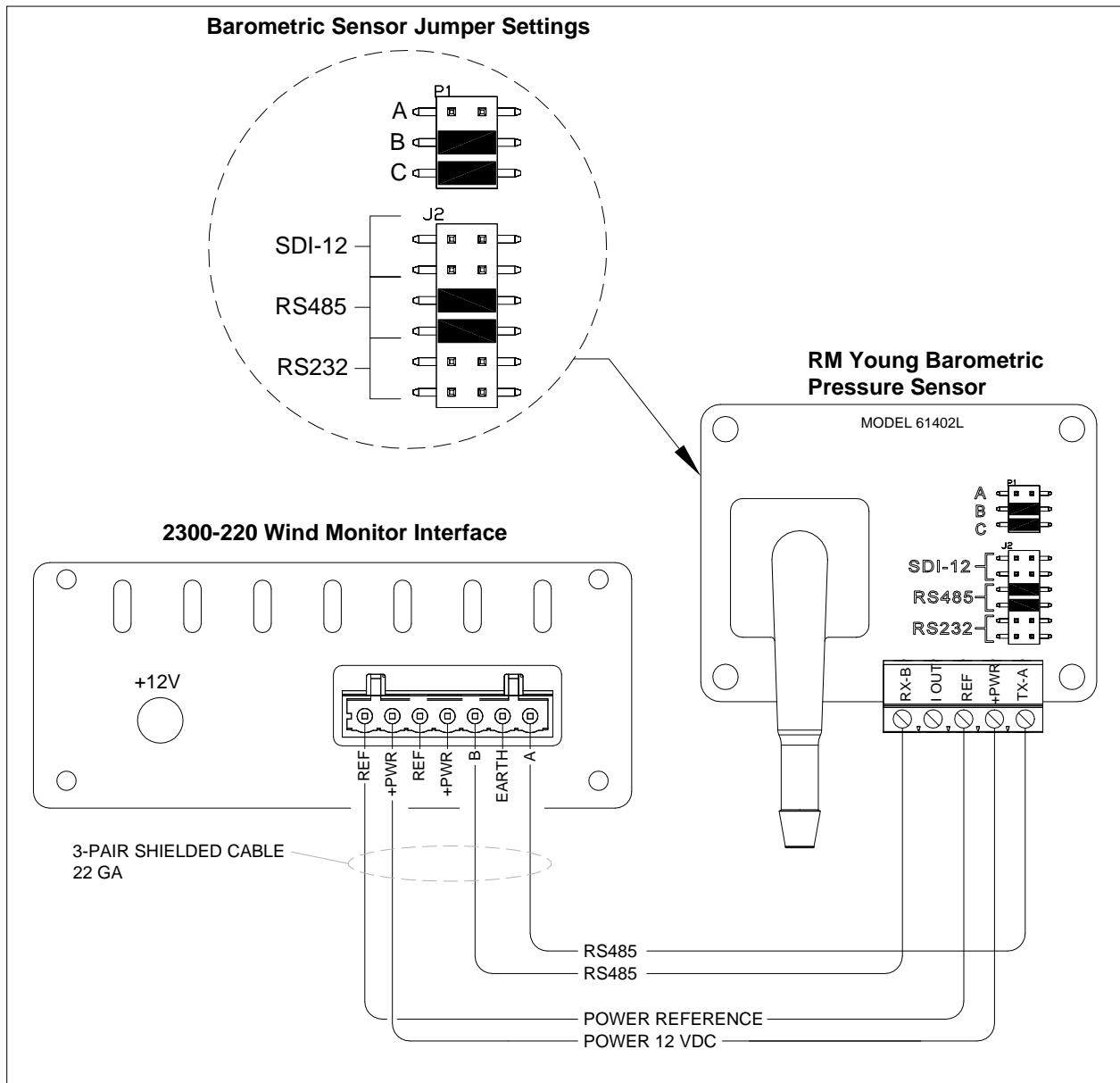
The RM Young Model 61402L Barometric Pressure Sensor is a versatile electronic barometer featuring high accuracy and low power consumption and is compatible with the Southern Technologies 2300-220 Wind Monitor Interface.

Mount the electronic barometer inside the building beside the SmartScanNG/NG² Defect Detector. Wiring from the barometer is terminal-per-terminal to the 2300-220 Wind Monitor Interface.

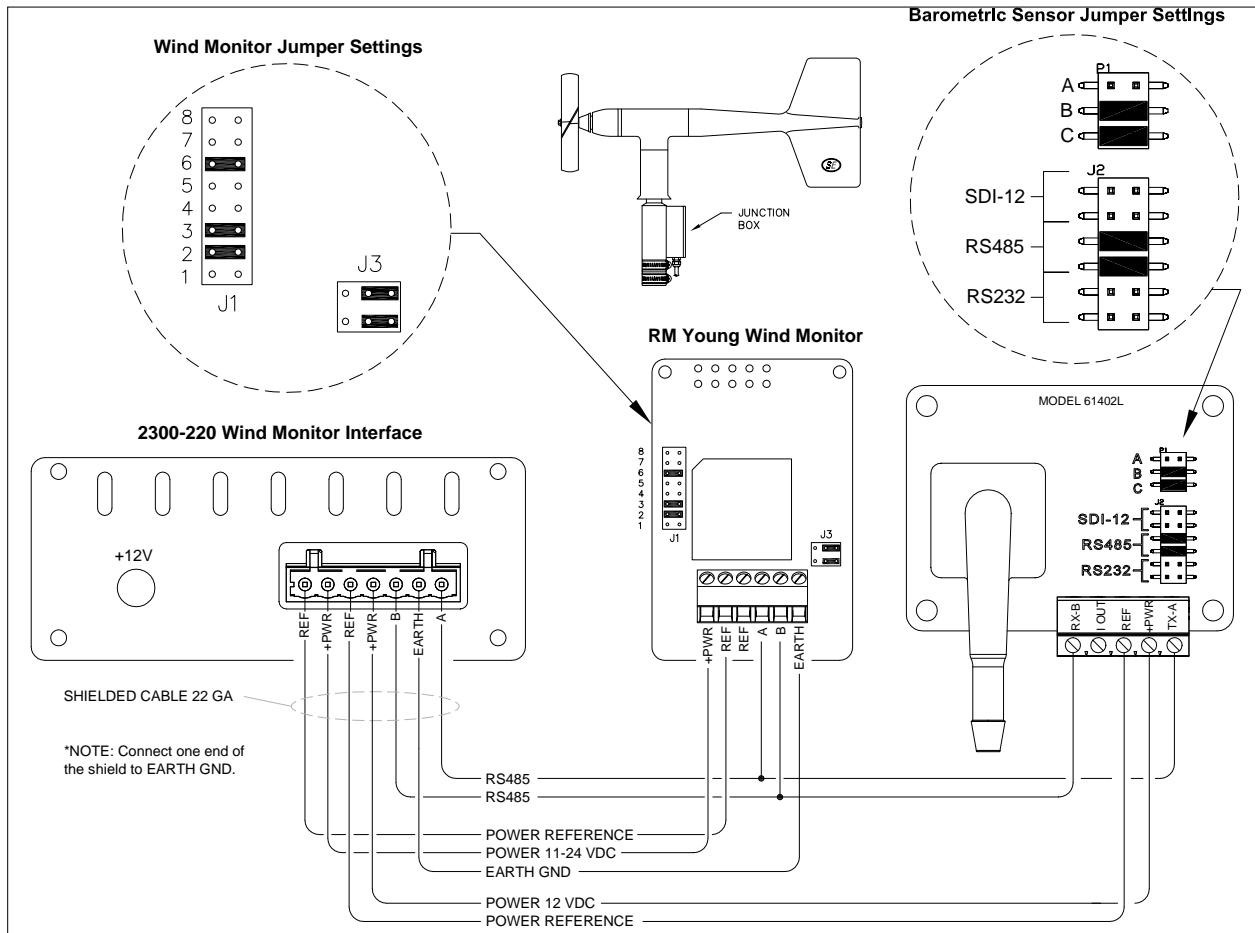
Existing defect detector systems may require a software update to permit communications with the electronic barometer and an additional setup parameter for the elevation above sea level of the detector site. As in weather reports from the National Weather Service, the NG/NG² system reports relative barometric pressure referenced to sea level.

Notes:

- Do not mount the Model 61402L Barometric Pressure Sensor near a heat source such as a space heater.
- Mount the Barometric Pressure Sensor conveniently on a wall near the SmartScanNG/NG² or the 2300-220 Wind Monitor Interface.
- The Barometric Pressure Sensor comes with a red protective cap over the sensor's inlet. *Remove the cap after installation.*



The above represents a wiring diagram and jumper settings for the RM Young Barometric Pressure Sensor.



The above represents a wiring diagram and jumper settings for the RM Young Barometric Pressure Sensor used with the RM Young Wind Monitor. The wiring configuration is standard RS-485 multi-drop.

Wind Monitor Interface Specifications

Internal Power Supply

Internal Power Supply Type:	DC-DC Converter, 3KV Isolation
Input Voltage Range :	9 - 30VDC
Regulated Output Voltage/Amps:	+12VDC, 1 Amp Max.
Output Regulation (0-100% Load Variation):	+/- 1.2%
Minimum Load:	Not Required
Maximum Input Current at Full Output Load ¹ :	1.6 Amps
Nominal Input Current at Full Output Load:	480mA
Input Current when Powering Only the Wind Monitor:	60mA
Input Current when Powering Only the Barometer:	26mA
Output Ripple and Noise:	75mVp-p typ., 115mVp-p full load
Minimum Operating Temperature:	40°C
Maximum Operating Temperature:	65°C
DC Surge Arrestor:	Output – Three-Stage Design: Differential Gas Discharge Tube, Common Mode Choke, 13-Joule MOV Input – Two-Stage Design: Self- Restoring PTC and 30V/5KW TVS
RS-485 Surge Arrestor:	Four Stage Design: Differential Gas Discharge Tube, Self- restoring PTCs, Current Limiting Resistors, Low Capacitance Diodes with 7V and 12V 1.5KW TVS to pass asymmetrical voltage levels per TIA/EIA-422A standards.

General

Dimensions (Inches):	Overall 3.80L X 5.525W X 1.80H
Weight:	12.2 oz.
Grounding Braid Cable:	3.5"

Note: ¹ Measurement taken representing the worst-case power supply input voltage of 9VDC for this specification.