Anemometer Wiring: Connections and Cable/wire Colours (colors)

(For W200P Series Potentiometer Windvane connections and cable/wire colours, click here)

(For General Information on Instrument Cables and Installation, click here...)

General information on common A100 Series Anemometer cable colour conventions

IMPORTANT INFORMATION:
1) *ALWAYS CHECK THE INSTRUCTIONS & SPECIFICATION SHEETS ORIGINALLY SUPPLIED WITH THE INSTRUMENT FOR THE CORRECT WIRING/CONNECTIONS AND FULL INFORMATION/SPECS FOR THE INSTRUMENT. INSTRUMENTS WITH EXTRA "SUFFIXES" AT THE END OF THE PART/MODEL NUMBER MAY HAVE DIFFERENT/NON-STANDARD WIRING AND SPECIFICATIONS. THE INFORMATION PROVIDED HERE IS FOR YOUR CONVENIENCE, AND FOR GUIDANCE ONLY. VECTOR INSTRUMENTS (WINDSPEED LTD) CANNOT BE HELD LIABLE FOR ANY DAMAGE CAUSED BY INCORRECT CONNECTION OF INSTRUMENTS BASED ON THE INFORMATION GIVEN HERE.*
2) *IF UNSURE ABOUT THE INSTRUMENT TYPE, SPECIFICATIONS, SUPPLY VOLTAGE/CURRENT RATINGS , OPTIONS OR CONNECTIONS, ALWAYS CONTACT OUR SALES DESK QUOTING ANY IDENTIFICATION INFORMATION YOU HAVE (TYPE / SERIAL NUMBERS ETC) TO OBTAIN COPIES OF ANY AVAILABLE INSTRUCTIONS AND OTHER INFORMATION ON A PARTICULAR INSTRUMENT.*
3) *IF YOU STILL AREN'T SURE OF THE INSTRUMENT TYPE, INITIALLY TRY CONNECTING A LOW VOLTAGE CURRENT LIMITED DC POWER SUPPLY SOURCE (E.G. A SMALL 9V BATTERY) AND MONITOR THE SUPPLY CURRENT USING A METER, BEING PREPARED TO QUICKLY DISCONNECT THE SUPPLY IF A HIGHER THAN EXPECTED CURRENT FLOWS.*
4) **NEVER* CONNECT ANEMOMETERS OR WINDVANES DIRECTLY TO A HIGH VOLTAGE "MAINS" ("LINE" OR "UTILITY") SUPPLY.*

A100 Series Anemometer Models WITHOUT "/HE-4" internal heater option:
(Numbers in *[square-brackets]* refer to notes below tables. For types not listed below, refer to the instructions provided with the instrument)

A100 Type	*Cable cores*	*Red*	*Blue*	*Green*	*Yellow*	*White*	*Black*	*Brown*	*Violet*
A100L2	6	Supply+ (pos)	Supply- (neg)	Analog / Voltage output	Output negative /common	Pulse / Frequency output *[a]*	Body-shell	N/A	N/A
A100LK	6	Supply+ (pos)	Supply- (neg)	Not Used *[b]*	Output negative /common	Pulse / Frequency output *[c]*	Body-shell	N/A	N/A
A100LM	6	Supply+ (pos)	Supply- (neg)	Not Used *[b]*	Output negative /common	Pulse / Frequency output *[c]*	Body-shell	N/A	N/A
A100K	4	Supply+ (pos)	Supply- (neg)	Pulse / Frequency output *[d]*	Output negative /common	N/A	N/A	N/A	N/A
A100M	4	Supply+ (pos)	Supply- (neg)	Pulse / Frequency output *[d]*	Output negative /common	N/A	N/A	N/A	N/A
A100R/K	4	Not Used *[e]*	Not Used *[e]*	Pulse / Frequency output *[g]*	Output negative /common *[g]*	N/A	N/A	N/A	N/A
A100R	4	Not Used *[e]*	Not Used *[e]*	Pulse / Frequency output *[g]*	Output negative /common *[g]*	N/A	N/A	N/A	N/A

A100 Series Anemometer Models WITH "/HE-4" internal heater option
(Letters in [square-brackets] refer to notes below tables. For types not listed below, refer to the instructions provided with the instrument)

A100 Type	*Cable cores*	*Red*	*Blue*	*Green*	*Yellow*	*White*	*Black*	*Brown*	*Violet*
A100L2	6	Supply+ (pos)	Supply- (neg)	Analog / Voltage output	Output negative /common	Pulse / Frequency output *[a]*	Body-shell	heater *[i]*	heater *[i]*
A100LK	6	Supply+ (pos)	Supply- (neg)	Not Used *[b]*	Output negative /common	Pulse / Frequency output *[c]*	Body-shell	heater *[i]*	heater *[i]*
A100LM	6	Supply+ (pos)	Supply- (neg)	Not Used *[b]*	Output negative /common	Pulse / Frequency output *[c]*	Body-shell	heater *[i]*	heater *[i]*
A100K	4	Supply+ (pos)	Supply- (neg)	Pulse / Frequency output *[d]*	Output negative /common	Not Used *[f]*	Body-shell [*h]*	heater *[i]*	heater *[i]*
A100M	4	Supply+ (pos)	Supply- (neg)	Pulse / Frequency output *[d]*	Output negative /common	Not Used *[f]*	Body-shell *[h]*	heater *[i]*	heater *[i]*
A100R/K	4	heater *[i]*	heater *[i]*	Pulse / Frequency output *[g]*	Output negative /common *[g]*	N/A	N/A	N/A	N/A
A100R	4	heater *[i]*	heater *[i]*	Pulse / Frequency output *[g]*	Output negative /common *[g]*	N/A	N/A	N/A	N/A

Notes:

N/A = wire/core is not present in the cable.

[a] = A100L2 pulse/frequency output levels are 0V and 5V (i.e. 5V amplitude). Pulse/Frequency output of the A100L2 is nominally "10Hz per Knot". This is a "low power" anemometer and draws less than 2mA from the DC power supply provided via the RED and BLUE wires.

[b] = A100LK and A100LM are effectively a variant of the A100L2 "without the analog/voltage output" and follow the same "wiring scheme", so the GREEN wire is "unused" and it is connected to BLUE at the anemometer end of the cable in newer units (but it is "isolated/floating" in older units).

[c] = A100LK and A100LM pulse/frequency output levels are 0V and 4V (i.e. 4V amplitude). This lower pulse voltage can be used to distinguish A100LK/A100LM from A100L2. Pulse/Frequency output of the A100LK is nominally "10Hz per Knot", and nominally "10Hz per m/s" for the A100LM. These are "low power" anemometers and draw less than 1.3mA from the DC power supply provided via the RED and BLUE wires.

[d] = A100K and A100M pulse/frequency output "low" level is close to 0V and the "high" level is provided by an internal "3K3 pullup" resistor to the RED wire (i.e. the "high" output level will be close to the supply voltage, but the level will be reduced by "loading" on the output wire/signal). These anemometers draw much more supply current via the RED and BLUE wires, typically 30mA. The high supply current draw can be used to distinguish these anemometers from other current models.

[e] = RED and BLUE wires are "isolated/floating" for A100R and A100R/K units which do not have the "/HE-4" anti-icing heater option (these wires are usually "cut off" at the free end of the cable so may not be visible, but are present in the cable). When the "/HE-4" anti-icing IS fitted to A100R or A100R/K units, the heater element is connected to the RED and BLUE wires.

[f] = The WHITE wire is connected to BLUE at the anemometer end of the cable in A100K and A100M units which have the /HE-4 anti-icing heater option fitted.

[g] = The A100R and A100R/K contain a simple magnetic switch ("reed switch") which is connected between the GREEN and YELLOW wires with a 120 ohm series/protection resistor. This switch opens/closes once per rotor revolution. The convention is to connect YELLOW to the logger ground/0V and GREEN to the logger input. A "pullup" or "wetting" resistor from the GREEN wire to a positive supply may be necessary if the logger does not provide this internally (consult your logger manual for details).

[h] = For the current anemometer models, the "convention" is that the BLACK wire is connected to the anemometer base-plate/body-shell where a BLACK wire is present in the cable. This means that A100K and A100M units with the "/HE-4" anti-icing heater option also have a BLACK wire connected to the bodyshell.

[i] The "/HE-4" anti-icing heater option is available in "12V/6W" and "24V/6W" versions. Using a resistance meter (Ohm Meter) to measure between the "heater" wires indicated in the tables above will give a reading of around 24 ohms for the 12V type, and around 96 ohms for the 24V type. These anti-icing heaters DO NOT include a thermostat or any other sort of thermal control, they are simply a resistive heating element.

General A100 Series Anemometer Wiring Notes:

A) Different anemometer types/models have different maximum/minimum limits on the allowed supply voltage range. In general, all A100 series anemometers will operate from a 12V DC supply (A100LK and A100LM will operate from a 5V DC supply, but not the A100L2). Refer to the individual anemometer specification sheet.

B) The presence (or absence) of the "/PC3" anti-surge option does not affect wiring or cable colours.

C) The cable shield/screen is "isolated/floating" at the anemometer end, and should normally be grounded at the measuring/datalogger end for best shielding effectiveness. The BLACK wire (where present in the cable) is normally connected to the bodyshell of the instrument - if the instrument mounting/mast is isolated, connect BLACK to ground at the logger (otherwise isolate/insulate the BLACK wire).

D) Most A100 Series Anemometers with the "/HE4" anti-icing heater option are fitted with an 8-core cable and are therefore easily identified. In the case of the A100R and A100R/K, the anti-icing heater element is connected between the RED and BLUE wires (which are unused in the non-heated versions) - use a resistance meter as indicated above to check if a heater element is fitted.

E) "Numeric suffixes" to the anemometer part number normally indicate the "fitted" cable length.

F) Other "suffixes" to the anemometer part number may indicate a "special" or "non-standard" anemometer, in which case do not rely on the standard connection information given above (refer to special instructions provided with the anemometer).

G) When connecting anemometers to measuring equipment, loggers, or junction boxes and connectors, "unused" wires MUST be "isolated/insulated". If "unused" wires are not "isolated/insulated" they can cause excessive current to be drawn from the power supply, or can cause incorrect/intermittent operation if they touch other signals/terminals/contacts. In extreme cases, the anemometer electronics could be damaged.

H) Some logger models require "Signal Conditioning Modules" (interface adaptors) from the logger manufacturer. Consult your logger manual/manufacturer.