Partner: Campbell Scientific
Model: WeatherHawk
Device Type: Weather Station

Certified Module

CRESTRON
CERTIFIED **INTEGRATED** PARTNER

GENERAL INFORMATION

SIMPLWINDOWS NAME:	WeatherHawk Weather Station v9.0
CATEGORY:	Misc
VERSION:	9.0
SUMMARY:	Provides all standard weather parameters
GENERAL NOTES:	This module will control a WeatherHawk Weather Station. It will provide true feedback for the following parameters: Temperature (F) and (C), Relative Humidity (%), Barometric Pressure (in) and (kPa), Wind Speed (mph) and (km/h), Wind Direction, Total Rainfall (in) and (mm), Evapotranspiration (in) and (mm), Solar Radiation (W/m^2), Total Snowfall Acc (in) and (mm), Total Snowfall (in) and (mm) and Wind Gust (mph) and (km/h). This module will also calculate the following parameters: Wind Chill (F) and (C), Dew Point (F) and (C), High and Low Temperature (F) and (C), High Wind Speed (mph) and (km/h) Most feedback is provided in both analog and serial format. The Start_RS232 input must be pulsed before polling will work properly. This will cause the Crestron system to read the current configuration of the WeatherHawk. This process will take several seconds. The Start_RS232_Busy output will be high while this is in progress. This module has an Enable input. When this input is held high, the WeatherHawk will be polled for its status as often as is specified by the Poll Time parameter field. It is recommended to use a poll time of 30s. If the Enable input is low, the WeatherHawk will never be polled, and the outputs of this module will not be updated. This module has an output called Communication_Failed_Fb. This output will be set high if the WeatherHawk does not respond to one of the configuration file requests. If there is no response, the module will resend the command 4 more times, for a total of 5 requests. If there is still no response, the Communication_Failed_Fb output will be set high. To start requesting the configuration file again, pulse to the Start_RS232 input. This will clear the Communication_Failed_Fb output and start requesting the configuration file again. The Communication_Failed_Fb output will also be set high if the WeatherHawk does not respond to 10 poll requests in a row. The module will continue to send the polling request. If the WeatherHawk responds to a poll request after the Communication_Failed_Fb output has been set high, the output will be set low.
CRESTRON HARDWARE REQUIRED:	Any 2-Series Control System or 3-Series System w/ a two-way RS-232 port.
SETUP OF CRESTRON HARDWARE:	RS232 Baud: 9600 Parity: None Data Bits: 8 Stop Bits: 1

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VENDOR FIRMWARE:	Operating System - CR200X.Std.02
	Program – WH600 V19.CR2 or later
	These versions are very important. If you are unsure of the version you have, please contact Campbell Scientific.
VENDOR SETUP:	None
CABLE DIAGRAM:	CNSP-121
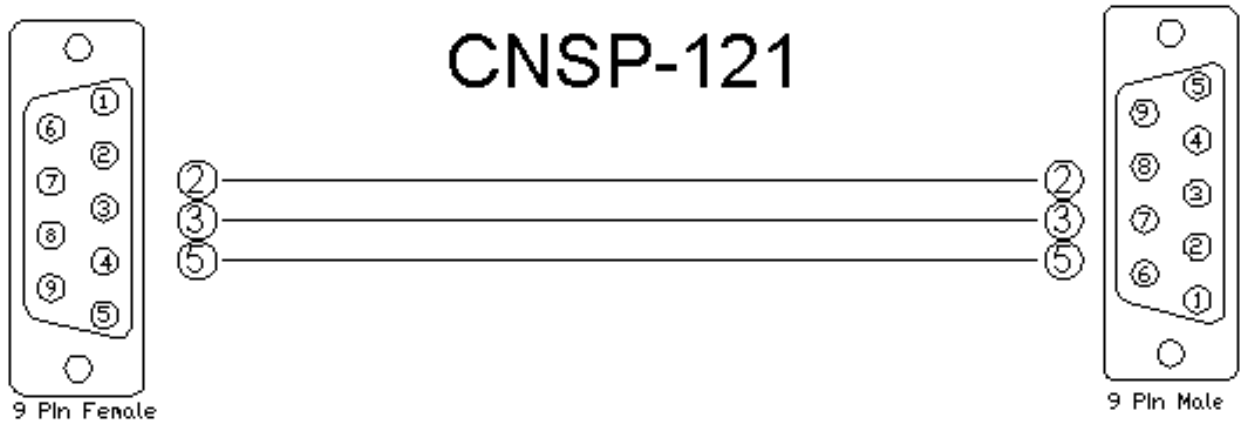
CONTROL:

Start_RS232	D	Pulse to initiate communications; this will take several seconds. The Start_RS232_Busy output will be high while in progress. This must be performed before polling will work properly.
Enable	D	Must be held high to enable polling/feedback
Reset_Rainfall	D	Pulse to reset the rainfall total stored on the WeatherHawk
Reset_High/Low_Temp/Wind	D	Pulse to reset the high/low temperature and wind speed. These values are stored on the Crestron system based on the information received from the WeatherHawk. You could program your system to automatically reset these values once per day.
Reset_Snow	D	Pulse to reset the snow total stored on the WeatherHawk
From_Device	S	Serial signal to be routed from a 2-way RS232 port.

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PARAMETERS:

Poll Time	P	This is the polling frequency. Default is 30 seconds.
Station Address	P	This is the address of the station you want to communicate with. Default is 01

FEEDBACK:

Start_RS232_Busy	D	High while initiating communications with the WeatherHawk.
Communication_Failed	D	High to indicate that the WeatherHawk is not responding to the Crestron.
Air_Temperature_(F)	A/S	Displays the outside air temperature in degrees Fahrenheit as a signed whole number with 1 decimal place (-xxx.x)
Air_Temperature_(C)	A/S	Displays the outside air temperature in degrees Celsius as a signed whole number with 1 decimal place (-xx.x)
Humidity_(%)	A/S	Displays the relative humidity as a percentage of 100%, with 1 decimal place (xxx.x)
Barometric_Pressure_(in)	A/S	Displays the barometric pressure in in. with 2 decimal places (xx.xx)
Barometric_Pressure_(kPa)	A/S	Displays the barometric pressure in kPa with 1 decimal place (x.xxx)
Wind_Speed_(mph)	A/S	Displays the wind speed in mph with 1 decimal place (xxx.x)
Wind_Speed_(km/h)	A/S	Displays the wind speed in km/h with 1 decimal place (xxx.x)
Wind_Direction_(Degrees)	A	Displays the wind direction in degrees (0-360) as a whole number (xxx)
Wind_Direction$	S	Displays a text representation of the wind direction (N, NE, ESE, etc.)
Wind_Direction_*	D	Digital signals indicating the current wind direction
Rainfall_(in)	A/S	Displays the accumulated rainfall in inches with 1 decimal place (xx.x)
Rainfall_(mm)	A/S	Displays the accumulated rainfall in mm as a whole number (xxxx)
Wind_Chill_(F)	A/S	Displays the wind chill in degrees Fahrenheit as a signed whole number (-xxx)
Wind_Chill_(C)	A/S	Displays the wind chill in degrees Celsius as a signed number with 1 decimal place (-xx.x)

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Dew_Point_(F)	A/S	Displays the dew point in degrees Fahrenheit as a signed whole number (-xxx)
Dew_Point_(C)	A/S	Displays the dew point in degrees Celsius as a signed number with 1 decimal place (-xx.x)
Evapotranspiration_(in)	A/S	Displays the daily evapotranspiration in inches as a number with 3 decimal places (x.xxx)
Evapotranspiration_(mm)	A/S	Displays the daily evapotranspiration in mm as a number with 2 decimal places (xx.xx)
Solar_Radiation_(W/m^2)	A/S	Displays the solar radiation in Watts/square meter (W/m^2) as a whole number (xxxx)
High/Low_Temperature_(F)	A	Displays the highest and lowest temperatures measured since the last time the "Reset_High/Low_Temperature/Wind_Speed" input was pulsed, in degrees Fahrenheit (-xxx.x)
High_Wind_Speed_(mph)	A	Displays the highest wind speed measured since the last time the "Reset_High/Low_Temperature/Wind_Speed" input was pulsed, in mph (xxx.x)
High/Low_Temperature_(C)	A	Displays the highest and lowest temperatures measured since the last time the "Reset_High/Low_Temperature/Wind_Speed" input was pulsed, in degrees Celsius (-xx.x)
High_Wind_Speed_(km/h)	A	Displays the highest wind speed measured since the last time the "Reset_High/Low_Temperature/Wind_Speed" input was pulsed, in km/h (xxx.x)
Wind_Gust_(mph)	A/S	Displays the wind gust in mph with 1 decimal place (xxx.x)
Wind_Gust_(km/h)	A/S	Displays the wind gust in km/h with 1 decimal place (xxx.x)
Snow_Acc_(in)	A/S	Displays the accumulated snowfall in inches with 1 decimal place (xx.x)
Snow_Acc_(mm)	A/S	Displays the accumulated snowfall in mm as a whole number (xxxx)
Snow_(in)	A/S	Displays the accumulated snowfall water equivalencyin inches with 1 decimal place (xx.x)
Snow_(mm)	S	Displays the accumulated snowfall water equivalency in mm as a whole number (xxxx)
Wind_Animation_Mode	A	Analog value used to display wind direction graphics via analog mode.
To_Device	S	Serial signal to be routed to a 2-way RS232 port

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TESTING:	
OPS USED FOR TESTING:	2-Series: v1.007.0019 3-Series: v4.007.0004
SIMPL WINDOWS USED FOR TESTING:	4.02.16
CRES DB USED FOR TESTING:	40.00.011.00
DEVICE DB USED FOR TESTING:	50.05.004.00
SYMBOL LIBRARY USED FOR TESTING:	863
SAMPLE PROGRAM:	WeatherHawk v9.0 Demo
REVISION HISTORY:	V2 - Added Start_RS232 function to initially poll the WeatherHawk for its configuration so the correct file signature can be calculated for poll commands. Also changed the order in which the parameters are parsed, so this will no longer work properly with older versions of WeatherHawk firmware. V4 – Corrected problems with temperatures below 0 Celsius and below 32 Fahrenheit displaying incorrectly, and causing incorrect high/low temperature displays, wind chill, and dew point calculations. V5 – Corrected problem with temperatures below 0 Celsius rounding off in the wrong direction (higher instead of lower). Also made module compatible with Operating system version 3.137. V6 – Corrected problem with invalid data being received and processed. All data received is now verified with checksum before processing. V7 – Added a time out so that the module will request the configuration file up to 5 times, if there is no response. If there is still no response after 5 requests, the Communication_Failed_Fb output will be set high. Added the Station Address parameter to allow for control and monitoring of more than 1 WeatherHawk on a system. V8 – Added solar radiation. Changed the Temperature Fahrenheit and wind speed to read with 1 decimal place. Fixed an error with the Temperature Fahrenheit that caused the module to display negative temperatures when the actual air temperature got above 32.7 degrees Celsius. V9.0 – Added snow, snow acc and wind gust.