



dataTaker Weather Sensor Code Examples

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Introduction

This example demonstrates how to use weather sensors with dataTaker products. The examples demonstrate various functions and provide code to use as a starting point for your application.

Hardware: DT80 and 800 Series of logger

For more information visit [thermofisher.com/datataker](https://www.thermofisher.com/datataker)

Gill wind sensors

Gill R3-50 High speed wind sensor

This program reads the ASCII output of a Gill R3-50 High speed 3 dimensional wind ultrasonic wind sensor.

```
BEGIN"Gill"
PS=115200,N,8,1,NOFC 'Define serial sensor port comms parameters.
1SERIAL(RS422,"\\e",W) 'Clear Input buffer.

RA1SERIAL"^B" 'Trigger schedule on STX char
1SERIAL(RS422,"^B%2d[1CV],%2d[2CV],%f[3CV],%f[4CV],%f[5CV],%f[6CV],%f[7CV],%f[8CV]\\e",2)
1CV("StaA")
2CV("StaB")
3CV("Wc1 ~m/s")
4CV("Wc2 ~m/s")
5CV("Wc3 ~m/s")
6CV("C")
7CV("T")
8CV("A1 ~V")
LOGON
END
```

Gill Windmaster 3D wind sensor

Applies to DT8x

This program reads the ASCII output of a Gill Windmaster 3 dimensional wind ultrasonic wind sensor.

```
BEGIN"WINDMSTR"
'This program reads Mode 2 ASCII, Polar, Continuous data output from a Gill Windmaster anemometer
'using RS422 comms at 19200,8,N,1, and logs output.
'Windmaster config string is M2,U1,O2,L1,P1,B4,H1,NQ,E1,T1,S1,C2,A1,I1,J1,V1,X1,G0,K50
'This is default mode except O2 is set for fixed format output for ease of parsing by DT80.
PS=RS422,19200,N,8,1,NOFC 'Define serial sensor port comms parameters.
1SERIAL(RS422,"\\e",W) 'Clear Input buffer.
P41=0 'no extra decimal places on seconds in time output
'/T/n/C/D/h/i P33=8 'Use this string for ASCII output with units from DT80
/n/c/u P22=44 P24=13 P33=0 'Use this string for comma delimited output from DT80
'Comma delimited format is DD/MM/YYYY,HH:MM:SS.S,A,DDD,M.MM,W.WW,UU,X
'Where A=Serial data state (0 is OK);DDD=Dirn;M.MM=Wind Magnitude;W.WW=W axis
'veLOCITY;UU=Units(decimal representation of ASCII code);X=Windmaster Status (0 is OK)
RA1SERIAL"^BQ" 'Trigger serial schedule on receipt of Q at start of Gill output string. 'Q is the
default node address of the Windmaster (NQ in config string). 1SERIAL(";%d[1CV],%f[2CV],%f[3CV],%c[4CV],%x[5CV],^C")
1CV("Dirn: ~deg",FF0) 2CV("Wind Magnitude: ~",FF2) 'Units as per identifier in
4CV 3CV("W axis Velocity:~",FF2) 'Units as per identifier in 4CV 4CV("Units: ~",FF0) 'm/
s=M(77);knots=N(78);mph=P(80);kph=K(75) 5CV("Status Code: ~",FF0) 'Typically 0 for good data LOGON END
```

Gill Windsonic ultrasonic wind sensor

Applies to DT8x

This program reads the NMEA-0183 output of a Gill Windsonic ultrasonic wind sensor. It may also be used for other anemometers with a NMEA-0183 MWV sentence output.

```
BEGIN"NMEAWIND"
'This program reads NMEA-0183 MWV sentence data from a Gill Windsonic anemometer using RS422 comms at
'4800,8,N,1, and logs wind speed and direction.
'Use windsonic config string as follows: M5,U1,02,L1,P1,B2,F1,H1,NQ,E1,T1,S3,C2
/T/N/D/U P33=15 'Output formatting
PS=RS422,4800,N,8,1,NOFC 'Define serial sensor port comms parameters.
1SERIAL(RS422,"\\e",W) 'Clear Input buffer.
RA1SERIAL"$IIMWV"
1SERIAL(",%d[1CV],R,%f[2CV],%c[3CV],%c[4CV]*")
1CV("Dirn:~deg",FF0) 'Wind direction in degrees
2CV("Spd:~",FF2) 'Wind speed (units are specified in 3CV)
3CV("Units:",FF0) 'm/s=M(77);knots=N(78);mph=P(80);kph=K(75)
LOGON
END
```

Vaisala sensors

Vaisala WTX510 and WXT520 Weather transmitter (ASCII)

Applies to DT8x and DT800

This code is to read a Vaisala WTX510 Weather transmitter configured for ASCII output.

```
BEGIN
1SSPWR=1
/T
PS=19200,N,8,1,NOFC
1SERIAL(RS232,"\\e}")
RA10S
1SERIAL(RS232,"\\e{0R1\\013\\010}\\m[,Dm=]%f[1CV],%*3S%f[2CV],%*3S%f[3CV],%*3S%f[4CV],%*3S%f[5CV],%*3S%f[6CV]",2,W)
1SERIAL(RS232,"\\e{0R2\\013\\010}\\m[,Ta=]%f[7CV],%*3S%f[8CV],%*3S%f[9CV],%*3S%f[10CV]",2,W)
1SERIAL(RS232,"\\e{0R3\\013\\010}\\m[,Rc=]%f[11CV],%*3S%f[12CV],%*3S%f[13CV],%*3S%f[15CV],%*3S%f[16CV],%*3S%f[17CV]",2,W)
1CV("Wind Dir Min ~Deg")
2CV("Wind Dir Ave ~Deg")
3CV("Wind Dir Max ~Deg")
4CV("Wind Speed Min ~m/s")
5CV("Wind Speed Ave ~m/s")
6CV("Wind Speed Max ~m/s")
7CV("Air Temp ~DegC")
8CV("Humidity ~%RH")
9CV("Air Pressure ~hPa")
11CV("Rain Amount ~mm")
12CV("Rain Duration ~Sec")
13CV("Rain Intensity ~mm/h")
15CV("Hail Amount ~Hits/cm^2")
16CV("Hail Duration ~Sec")
17CV("Hail Intensity ~Hits/cm^2h")
END
```

Vaisala HMP45A

Applies to DT8x and DT800

This code reads the 0 to 1 VDC analog output of an HMP45A and scales the data to Temperature and Humidity.

```
BEGIN

S1=-40,60,0,1000"DegC"      'Scale for Temperature : -40 DegC = 0 mV, 60 DegC = 1000 mV
S2=0,100,0,1000"%RH"       'Scale for humidity : 0 %RH = 0 mV, 100 %RH = 1000 mV

RA10S LOGONA
  1V(S1,"Temperature")      'Connect Temperature output between +/- Channel 1 and use span 1 (S1) to scale
  1*V(S2,"Humidity")        'Connect Humidity output between */# channel 1 and use span 2 (S2) to scale.

END
```

Optical Scientific Inc.–LOA 105 Optical Anemometer (Harsh Industrial Environment)

OSI LOA-105-xR DT8x/800 code currently untested

Note: If you are to send this code to the logger with DeTransfer, you will need to replace the \ characters with \\, as DeTransfer interprets the \ as the start of a DeTransfer command, so to get DeTransfer to send a single \ you have to provide it with \\.

Wind speed and direction sensors by Optical Scientific industries are designed specifically for the Aluminum Plants. Using an optical technique, it will operate in high EMF and dirty environments as found in Aluminum Smelters.

```
BEGIN"LOA 105"
PS=RS232,1200,N,8,1,NOFC
1SERIAL("\\e")
RA10S
  1SERIAL(RS232,"{A}",=99CV,W)
' Read Wind Speed 10CV
  1SERIAL(RS232,"W%5f",3,=10CV)
' Read Turbulance 11CV
  1SERIAL(RS232,"C%9f",=11CV)
' Read A detector level 12CV
  1SERIAL(RS232,"A%4f",=12CV)
' Read B detector level 13CV
  1SERIAL(RS232,"B%4f",=13CV)
' Read System Status 14CV
  1SERIAL(RS232,"B%4x\\e",=14CV)

END
```

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For customer service, call 1300-735-292
To email an order, ordersau@thermofisher.com

In New Zealand:

For customer service, call 0800-933-966
To email an order, ordersnz@thermofisher.com

Find out more at thermofisher.com/datataker

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