Thies FC Wind Direction Transmitter 4.3151.10.020 on SymphoniePRO

Introduction

This document explains how to configure and wire the Thies First Class (FC) Wind Direction Transmitter (Thies part number 4.3151.10.020) with a SymphoniePRO Data Logger.

Simple Configuration

The simple configuration of the Thies FC Wind Direction Transmitter 4.3151.10.020 uses P-SCM 9135 (0-30V) with 12V constant excitation utilizing (2) channels (channels 13-19 for excitation and channels 20-26 for the remainder of the wiring) on the SymphoniePRO logger.

Mounting

Use the [Thies Adapter boom extension](#) (#9344) to mount Thies First Class Wind Direction Transmitter on any 25 mm (.98") diameter vertical pipe, such as NRG boom #4478 or any boom already fitted with a WindSensor Adapter Kit.
When installing the wind vane, be sure to secure it in place with the north notch (represented by an "N" on the base of the sensor) along the boom, toward the tower.
The wind vane should be wired as follows:

Wiring

Channels 20-26 utilizing P-SCM *#9135 (0-30V, SE Input, Constant 12V EXC).*

Picture on page 2 show example wiring on channel 20.

Thies First Class Wind Direction Transmitter 4.3151.10.020 Wiring		
Cable Pinout	**Color***	**Wiring Panel Terminal**
Pin 2	Green	**GND** : ground
Pin 1	White	**SIG** + : signal positive
Pin 4	Yellow	**SIG** − : signal negative
⏚	Green/yellow	**SHD** : shield

*Wiring colors refer to NRG's Thies sensor cables. Cables obtained elsewhere may have different colors.

Channels 13-19: Utilize the Excitation wire only. No P-SCM is required for these channels. If more than 1 Thies Vane 4.3151.10.020 is being used, their Excitation wires can utilize the same channel/EXC terminal. Picture on page 2 below shows Excitation wire connected to channel 17.

Thies First Class Wind Direction Transmitter 4.3151.10.020 Wiring		
Cable Pinout	**Color***	**Wiring Panel Terminal**
Pin 3	Brown	**EXC** : excitation

*Wiring colors refer to NRG's Thies sensor cables. Cables obtained elsewhere may have different colors.
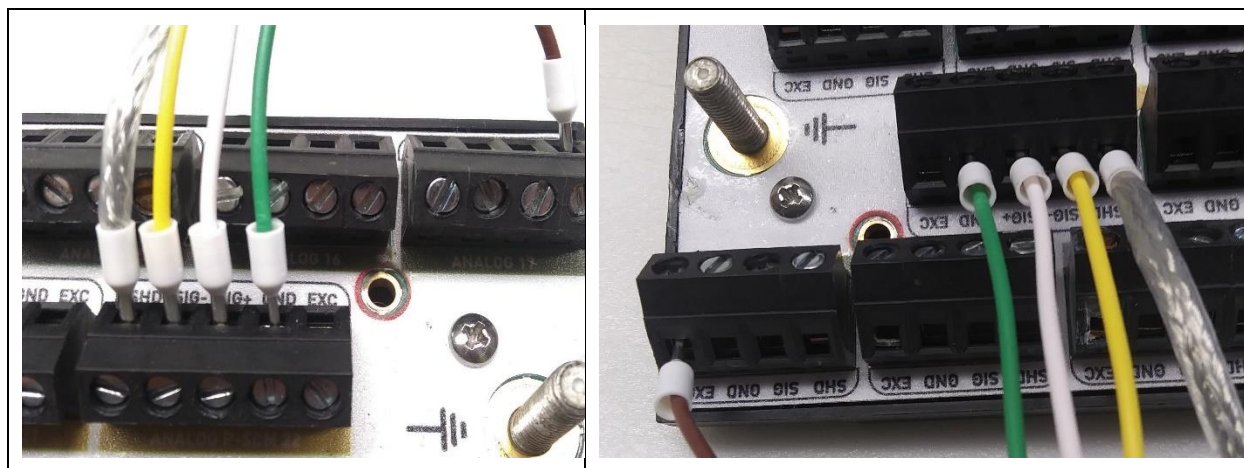
Logger Programming:

Note: This sensor requires one channel to be configured for Excitation power plus one channel for signal and ground.

A. **Excitation Channel:** Configure an open built-in channel (13-19) for 5V Constant EXC (e.g., channel 17 shown in the example below).

There is no default option for this sensor model, so you have to modify the configuration as follows:

1. Click on the "**Load From Defaults**" button and choose "**No Sensor**"
2. Change the Description to: Thies 4.3151.10.020 EXC
3. Configure excitation as follows:
   a. Use the drop-down arrow for the Excitation mode and choose Constant On
   b. Use the drop-down arrow for the Excitation Voltage and choose 5V
   c. All other configuration takes place on your chosen channel (20-26)
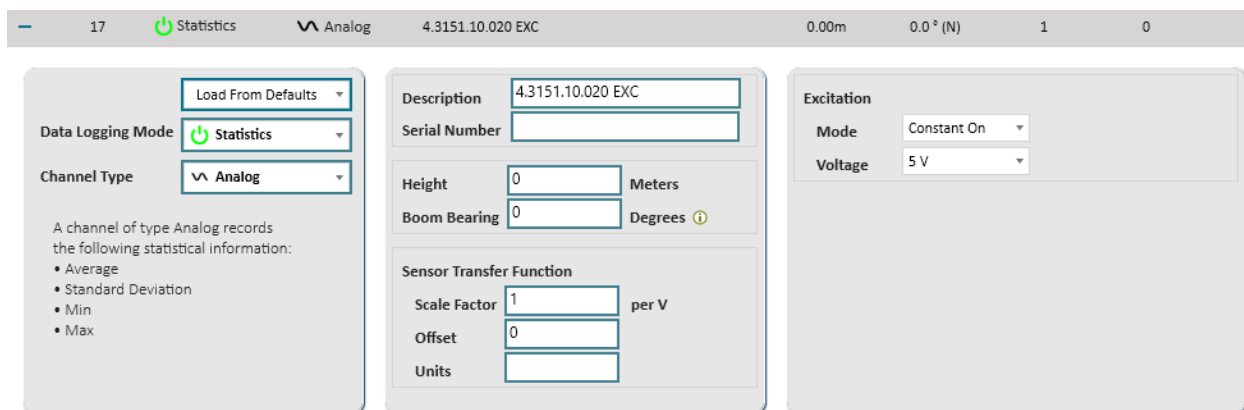
    d.   Save your changes by clicking the "Save To Logger" button

    e.   Now change the Data Logging Mode from "Statistics" to "Off" and "Save To Logger" again. This will keep the same constant 5V excitation flowing to your sensor while not displaying a line in your data file without measurements.

Note: Up to three Thies Vane (Model 4.3151.10.020) Excitation wires can be connected to this channel for proper power to the vanes.

B. Signal and Ground Channel:

Install the wind vane on channels 20 – 26 with P-SCM #9135 (0-30V, SE Input, Constant 12V EXC).

There is no default option for this sensor model, so you must modify the channel configuration as follows:

1. Click on the "**Load From Defaults**" button and choose "**Thies 10K Wind Vane (xx.210)**"
2. Change the Description to: Thies 4.3151.10.020
3. Fill out the relevant sensor details:
    a. Serial Number of the sensor.
    b. Height of the vane head.
    c. Boom Bearing – the direction the boom is pointing (e.g., if the boom is installed pointing east, it would be 90°).
    d. Vane Mounting Angle (VMA) – as mentioned above, we always recommend pointing the north mark towards the tower. This means the VMA will be 180°.
    e. Set Scale Factor to 431.99°/V.
    f. Offset will always be 0°. Do not correct for the boom direction. This is done above with Boom Bearing.
    g. P-SCM selection - using the drop-down arrow, select the 9135 P-SCM.
    h. Dead Band - Leave North East and North West Dead Band Compensation settings at 0°.

| — | 20 | ⏻ Statistics | ⊤ Wind Vane | Thies 4.3151.10.020 | | 60.00m | 0.0 ° (N) | 431.99 | 0 | Deg |

Data Logging Mode ⏻ Statistics

Channel Type ⊤ Wind Vane

Load From Defaults

A channel of type Wind Vane records the following statistical wind direction information:
• Average (unit vector method)
• Standard Deviation (Yamartino Method)
• Direction of maximum gust (Channel 20 detects maximum gust with channel 8)

Description Thies 4.3151.10.020

Serial Number

Height 60 Meters

Boom Bearing 0 Degrees ⓘ

Vane Mounting Angle 180 Degrees ⓘ

Sensor Transfer Function

Scale Factor 431.99 Degrees per V

Offset 0 Degrees

Total Direction Offset: 180.0 Degrees ⓘ

SymphoniePRO Signal Conditioning Module (P-SCM)

P-SCM #9135, (0 to 30) V, SE Input, Constant 12V EXC

Dead Band Compensation ⓘ

North East 0 Degrees

North West 0 Degrees

Final Test

Use the Live Data function of SymphoniePro Desktop Application (SPD) to perform a quick functionality test. Do this by turning the vane head north, east, south, and west and verify on the Channels tab of SPD that the readings match the direction the vane is physically pointing during the test.