**THIES FIRST CLASS ADVANCED X** | CUP ANEMOMETER

**4.3352.10.400**

**4.3352.00.400 (heated)**

## CABLE RECOMMENDATION

Signal cable up to 150m: **6x0.5 mm² + shield**. For longer cable, please consult sensor manufacturer.
Heating cable cross-section should be calculated based on the power system requirements (Volts and Amps) and the cable length. Please use a wire sizing tool for selecting the most suitable cable.

## SENSOR WIRING TABLE

**Important! Prior to installation of this sensor, the configuration of the sensor itself should be done as this will determine how the sensor should physically be wired to the data logger and configured in Atlas.**

**Option A (recommended):** How to wire the sensor to the data logger using the RS485 output of the sensor. This option allows for higher precision measurements as the sensor can activate internal heating of the specific electronic components used for both inclination and pressure measurements.


*Base sensor view / Soldering connector view.*

| Sensor Model | Sensor Pin | | Kintech Colors | | Orbit 360 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Section | Terminal | Type |
| | 1 | SIG | ○ | White | Do not connect | | |
| | 2 | GND | ● | Brown | Power Imput | (-) | |
| | 3 | Us (+) | ● | Green | Power Input | + | |
| | 4 | Data (-) | ● | Grey | RS485 | 34 38 42 | B1, B2, B3 |
| | 5 | Data (+) | ● | Pink | RS485 | 33 37 41 | A1, A2, A3 |
| | 6 | Data GND | ● | Yellow | RS485 | 35 39 | (-) |
| | Shield | | ● | Yellow-Green | Power Input | ⏚ | |
| | 7 | Heating (+) | ● | Brown | Independent power supply 24 AC/DC | | |
| | 8 | Heating (-) | ● | Blue | | | |

**Option B:** How to wire the sensor to the data logger using both the frequency and the RS485 output of the sensor simultaneusly. Please note that the following wiring **does not allow** for internal heating of electronic components of the sensor used for higher precision inclination and pressure measurements.


*Base sensor view / Soldering connector view.*

| Sensor Model | Sensor Pin | | Kintech Colors | | Orbit 360 | | |
|---|---|---|---|---|---|---|---|
| | | | | | Section | Terminal | Type |
| | 1 | SIG | ○ | White | Frequency Channels | 2 5 8 11 14 17 20 23 26 29 | Signal |
| | 2 | GND | ● | Brown | Frequency Channels | 1 4 7 10 13 16 19 22 25 28 | (-) |
| | 3 | Us (+) | ● | Green | Frequency Channels | 3 6 9 12 15 18 21 24 27 30 | 5V |
| | 4 | Data (-) | ● | Grey | RS485 | 34 38 42 | B1, B2, B3 |
| | 5 | Data (+) | ● | Pink | RS485 | 33 37 41 | A1, A2, A3 |
| | 6 | Data GND | ● | Yellow | RS485 | 35 39 | (-) |
| | Shield | | ● | Yellow-Green | Power Input | ⏚ | |
| | 7 | Heating (+) | ● | Brown | Independent power supply 24 AC/DC | | |
| | 8 | Heating (-) | ● | Blue | | | |

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## REQUIRED DATA LOGGER VERSION

Minimum data logger required: **ORBIT 360 PREMIUM**.
Minimum **firmware** required: **2.24**.

## HOW TO CONFIGURE IN ATLAS

Start Atlas and open the data logger you are working on. Now go to *Site settings* and scroll down to the *Channels* section and select the following type and model:

**Option A (recommended):** The variables from the digital output signal can be chosen (or assigned) to either a frequency or an analog channel according to the list here below (see example on the last page).

Serial bus 1 baud rate: 9600bps
Bus: Serial 1 >>> ID: A >>> Sensor model: Thies X Advanced >>> Name: Thies X Advanced_SERIAL1_A

- Group: Frequency channels
- Sensor Type: Serial device
- Sensor Model: **Thies X Advanced_SERIAL1_A**
  - Sensor Model: **Corrected Horizontal Speed**
  - Sensor Model: **Vibration Freq X**
  - Sensor Model: **Vibration Freq Y**

- Group: Analog channels
- Sensor Type: Serial device
- Sensor Model: **Thies X Advanced_SERIAL1_A**
  - Sensor Model: **Pressure**
  - Sensor Model: **TILT**
  - Sensor Model: **Vibration Acc X**
  - Sensor Model: **Vibration Acc Y**

**Option B:** The frequency output signal from the instrument must be connected to one of the frequency channels (FRQ1 to FRQ10):

- Group: Frequency channels
- Sensor Type: Anemometer
- Sensor Model: **Thies First Class Advanced** (when FO7 is configured in the sensor itself) *

*If the sensor is configured with another FO (apart from FO7) then please contact our technical support.

**Important! Prior to installation of this sensor, the configuration of the sensor itself should be done as this will determine how the sensor should physically be wired to the data logger and configured in Atlas.**

For setting up the variables from the RS485, please follow the setup instructions in option A (on top of this page).

**Important!** Please make sure you are working with the latest version of Atlas. To check for new updates click the *Check for updates* button in the left-hand menu located in the main dashboard.

Sensor response time: **140ms.**
**The sum of the response times of all the sensors connected to the same bus must not exceed 850ms.**

## USING ANEMOMETER THIES FIRST CLASS ADVANCED X WITH THE ORBIT 360 PREMIUM DATA LOGGER

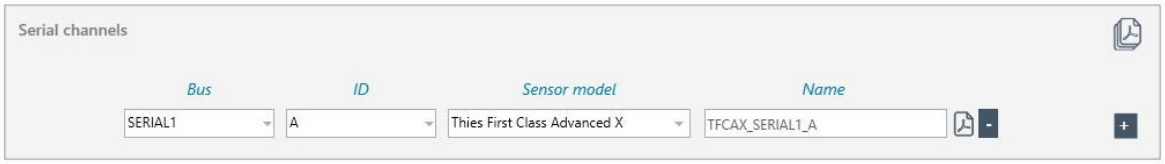
The Orbit 360 Premium data logger is fully compatible with the Thies First Class Advanced X cup anemometer and can store variables from up to 8 devices simultaneously on each of the three RS485 buses.

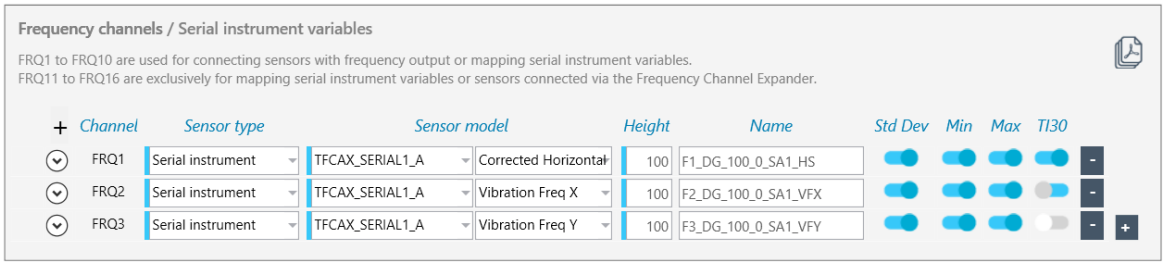
The Thies First Class Advanced X cup anemometer features both a traditional frequency output signal as well as a new digital output signal. The traditional frequency output from the instrument is used to collect the non-corrected horizontal wind speed (no instrument calibration is applied to the frequency signal). The digital output signal is used to collect the remaining variables from the instrument, including density corrected wind speed, tilt, vibration etc.

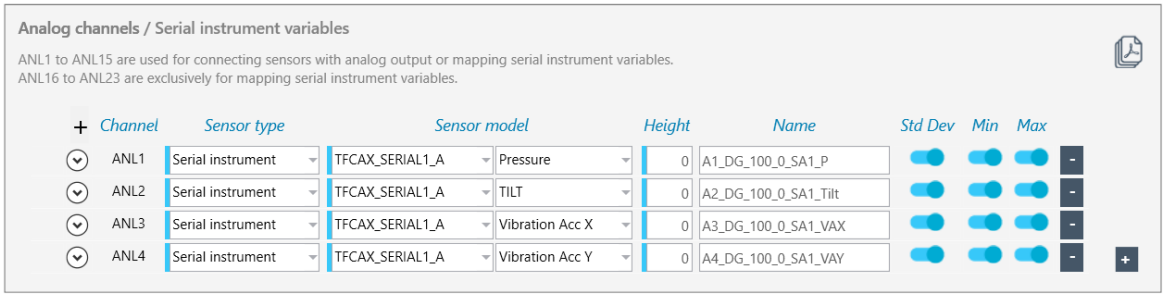
**Example how to setup the sensor in Atlas when following Option A:**

In the example below, Atlas is used to configure a Thies First Class Advanced X anemometer with F07 configured in the sensor itself and following option A.

- Corrected wind speed from the digital output is mapped to channel FRQ1
- Vibration Freq X from digital output is mapped to channel FRQ2
- Vibration Freq Y from digital output is mapped to channel FRQ3
- Pressure from digital output is mapped to analog channel ANL1
- TILT from digital output is mapped to channel ANL2
- Vibration Acc X from digital output is mapped to channel ANL3
- Vibration Acc Y from digital output is mapped to channel ANL4

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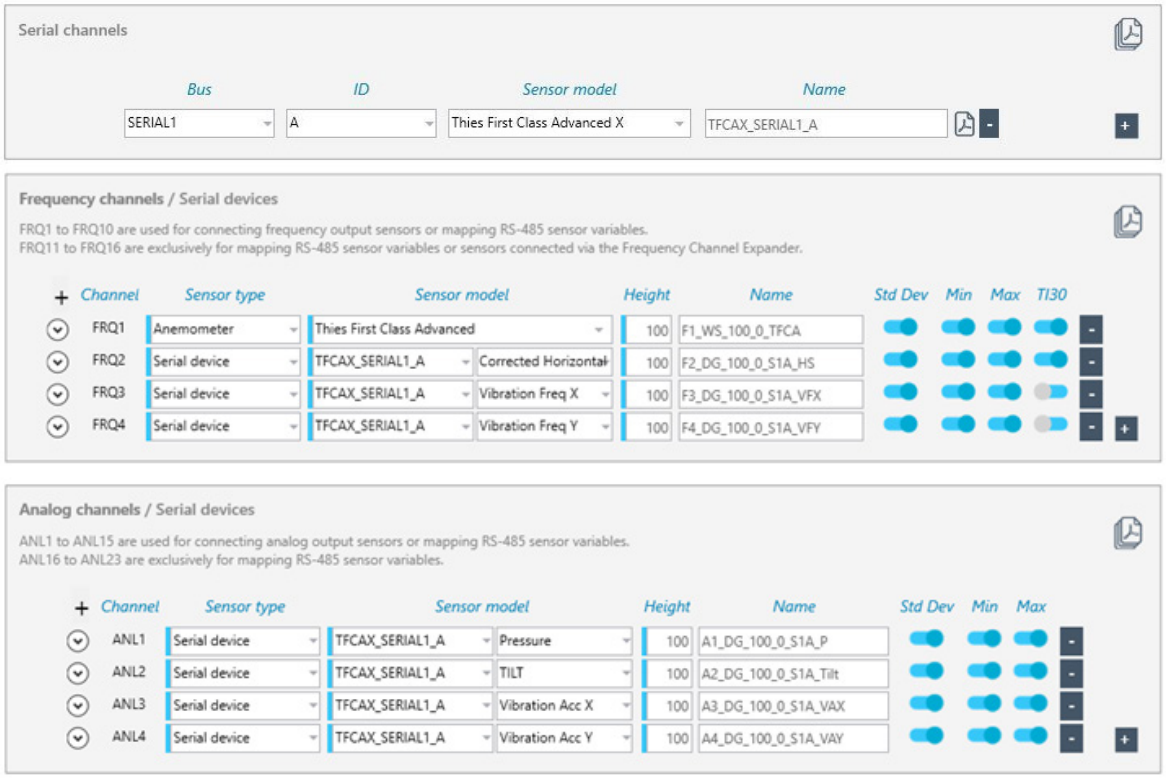
**Example how to setup the sensor in Atlas when following Option B:**

In the example below, Atlas is used to configure a Thies First Class Advanced X anemometer with F07 configured in the sensor itself and following option B.

- Non-corrected wind speed from the frequency output is connected to channels FRQ1
- Corrected wind speed from the digital output is mapped to channel FRQ2
- Vibration Freq X from digital output is mapped to channel FRQ3
- Vibration Freq Y from digital output is mapped to channel FRQ4
- Pressure from digital output is mapped to analog channel ANL1
- TILT from digital output is mapped to channel ANL2
- Vibration Acc X from digital output is mapped to channel ANL3
- Vibration Acc Y from digital output is mapped to channel ANL4




## MEASNET CALIBRATION

Several options for Measnet calibration of the Thies First Class Advanced X anemometer are available.

**Option A recommended:** RS485 output calibrated.
**Option B:** either frequency or RS485 calibrated, always with internal sensors heating deactivated.

For more information, please contact us on **web@kintech-engineering.com.**

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