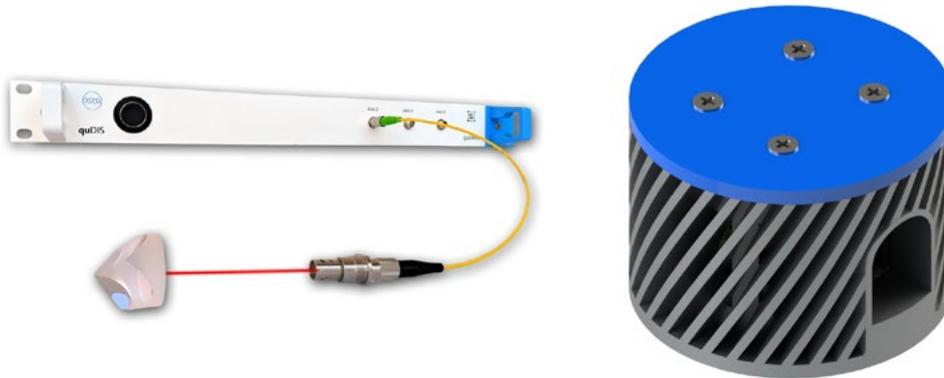# quDIS AMU

Ambient Measurement Unit

Key Features

The quDIS Ambient Measurement Unit (AMU) is designed to compensate refractive-index changes induced by temperature T, pressure p and relative-humidity rH fluctuations with an overall accuracy of 1 ppm.
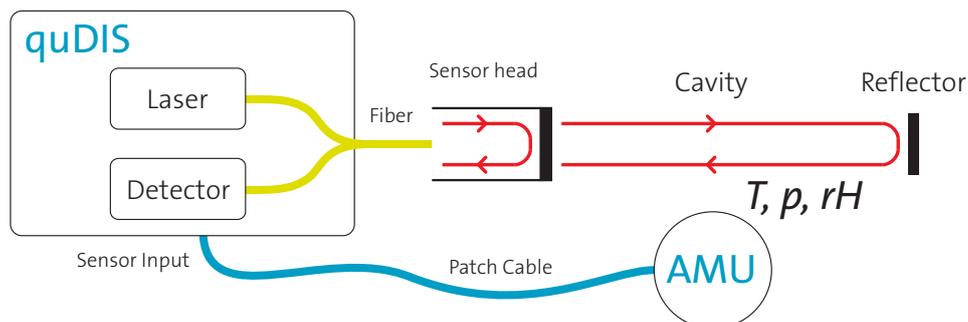
Applications

- Analysis of environmental parameters: temperature, relative humidity and pressure
- Distance measurement compensation
- Measurement of refractive index

Specifications

Sensor Accuracy

Temperature	±0.1°C (-5 ... 50°C)
Pressure	±1 hPa (300 ... 1100 hPa, 0 ... 65°C)
Relative humidity	± 2 % (10... 90% rH, 5... 55°C)
AMU accuracy	±1 ppm
Sampling rate	10 Hz

Hardware

Dimensions	38 mm x Ø58 mm
Connector	RJ45
Cable length	4 m
Weight	75 g

Application

Temperature, pressure and relative humidity values are measured live by the AMU. These values are used for the correction of the refractive index of the cavity and applied to the quDIS distance measurement. The gradients of all three parameters are assumed to be constant within the cavity range, as the AMU sensor measures local variations.

The AMU is placed near the optical path of the quDIS measurement and connected with a CAT 5e F/UTP patch cable to the quDIS sensor port. In the software, the three live ambient measurements can be individually included in the calculation of the refractive index. The result can than be applied to each quDIS axis.