

CF1 SERIES

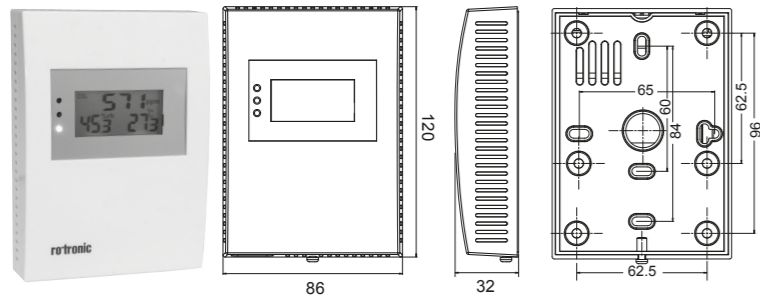
Short Instruction Manual

1 GENERAL DESCRIPTION

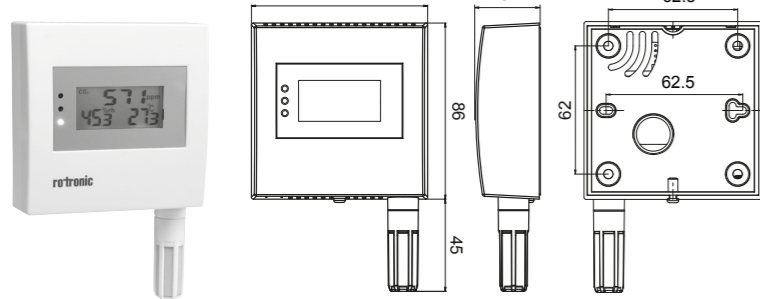
The units in the CF1 series are universal measurement transducers for transmission of humidity, temperature and CO₂. You will find more information at www.rotronic.com

1.1 DIMENSIONS / CONNECTIONS

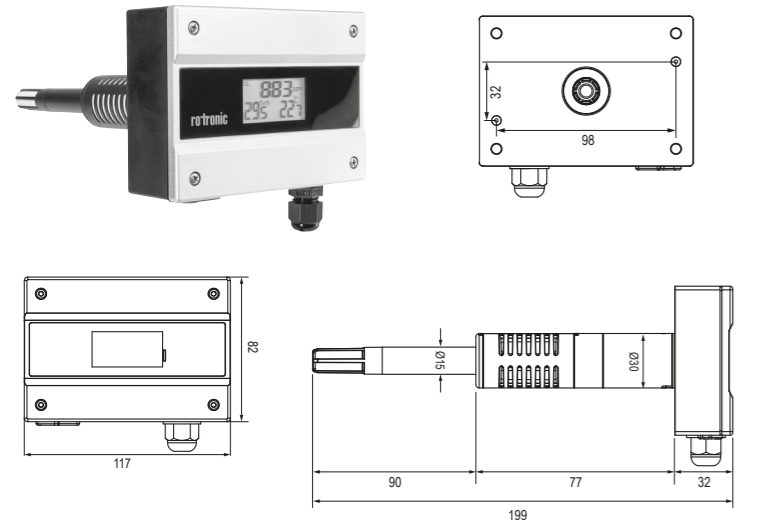
Type S



Type R



Type D



2 MECHANICAL INSTALLATION

Note: In order to receive correct measurements, you must ensure that the measurement transducer is subjected to the flow of the air to be measured.

- Remove the mounting plate by loosening the screw.
- Attach the mounting plate at the desired position with 2 screws.
 - Choose a representative position for installation:
 - Install the measuring head in a place at which the conditions of airspeed, humidity, temperature and pressure are typical of the environment to be measured
 - Ensure that the ambient pressure at the point of measurement is kept as constant as possible
 - Avoid installation close to heating elements, refrigeration units, or cold or warm walls
 - Do not install the measurement transducer in potentially explosive environments
 - Install the measurement transducer indoors
 - Avoid any physical contact with the sensor
 - Avoid installation in dusty environments
 - Avoid physical shocks or vibrations

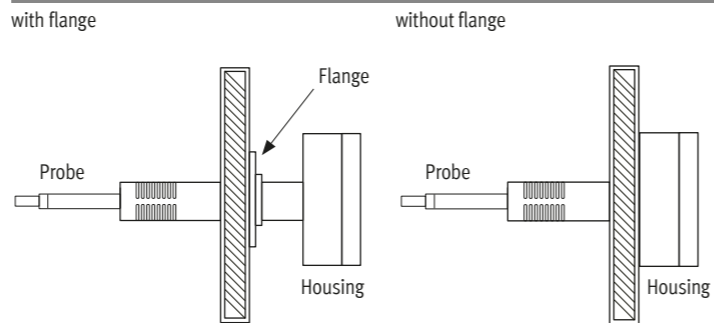
2.1 RECOMMENDED TOOLS FOR INSTALLATION

- Phillips screwdriver
- Standard screwdriver
- Open-end wrench, 27 mm

2.2 POSITIONING IN OFFICES (TYP S/R)

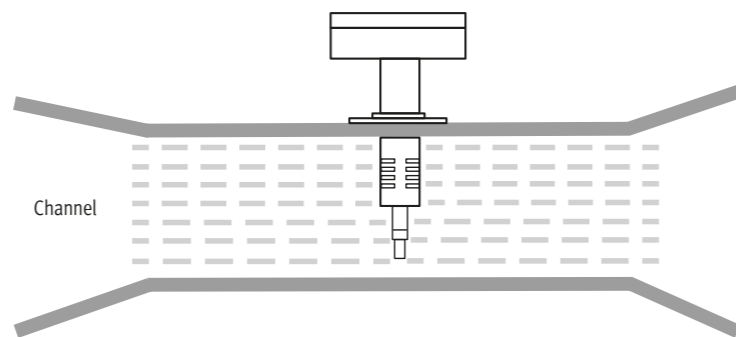
Recommended mounting height about ca.1.20m (respiration level)

2.3 MOUNTING THE DUCT VERSION



2.4 MOUNTING POSITION

Information for accurate measurement result: Max. air flow shouldn't 20m/s exceed



3 ELECTRICAL INSTALLATION

Caution: Wrong supply voltages and excessive loads on the outputs can damage the transmitter.

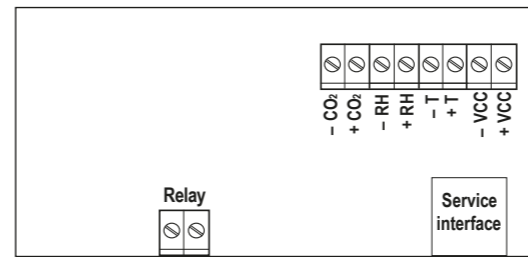
3.1 TERMINAL CONFIGURATION / WIRING DIAGRAMS

Using the table "Supply Voltage / Technology", identify the type, so that you can use the following connection schematics:

Power Supply			
Type	Supply voltage	Load	Output
CF132	12..28 VAC / 15..40V DC	Max.500 Ω	4..20 mA
CF135	12..28 VAC / 15..40V DC	Max.10 kΩ	0..10 V

3-core

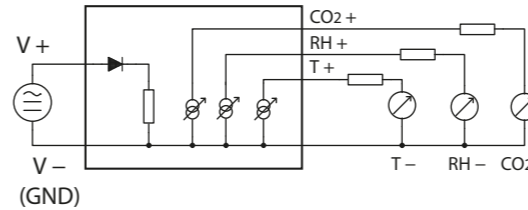
Type S/R



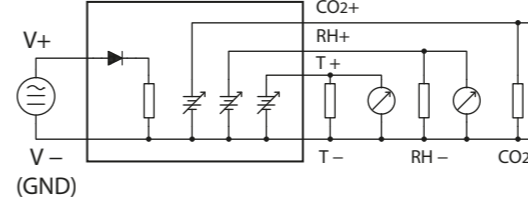
Type D



Current output



Voltage output



Schematic	Description
V+	Power supply +
V-	Power supply -
Temp +	Temperature analog out +
Temp -	Temperature analog out -
RH +	Humidity analog output +
RH -	Humidity analog output -
CO ₂ +	Carbon dioxide analog output +
CO ₂ -	Carbon dioxide analog output -
Relay	Normally open (NO)

4 PROGRAMMING

The initial settings of the units are made in the factory to your order. The transmitters are adjusted in the factory, so checking and readjustment at installation time are not necessary. The units can be put into operation immediately after installation. Using the SW21 or HW4 software and a standard mini-USB cable, you can make the following settings:

- Scaling of the analogue outputs (°C & %RH)
- 1-point adjustment for humidity
- 1-point adjustment for CO₂
- General settings
- Selectable analog signal (Not selectable from V to mA output)
- Change CO₂ (2000/5000 ppm)
- Set CO₂ threshold
- Relay source (CO₂, °C, %RH)
- ABC for CO₂ (On/Off)
- Backlight (On/Off)

Procedure

- Connect the power supply
- Connect the measurement transducer to the PC via mini-USB cable
- Program the measurement transducer using the SW21 or HW4 software
- Remove the power supply (The measurement transducer must be isolated from the power for at least 2 seconds)

5 SOURCES OF ERROR

Measured values can be compromised by the following influences:

Temperature Errors

Through insufficient adaptation time, cold outer walls, heaters, direct sunlight, etc.

Humidity Errors

Through vapor, splashed water, dripping water or condensation on the sensor, etc. This does not, however, impair reproducibility or long-term stability, even when the sensor is exposed to high humidity or saturation with water vapor (condensation) for a prolonged period.

Carbon Dioxide Errors

Plants that are placed close to the measurement transducer neutralize the CO₂. Objects or persons that radiate carbon dioxide can also indicate an increased CO₂ content that is not strictly part of the surroundings that are to be measured.

Contamination

Through dust in the air. The choice of sensor filter depends on the degree of contamination at the measurement point, and the filter should be cleaned or replaced at intervals.

6 PERIODICAL CALIBRATION OF THE SENSOR / TRANSMITTER

Both the temperature sensor and the associated electronics are very stable, and do not normally have to be changed or calibrated after calibration in the factory. The long-term stability of the Rotronic Hygromer humidity sensor is typically better than 1 %RH per year. For maximum precision, we recommend calibration of the sensors approximately every six to twelve months. In the case of applications in which the sensor is subjected to pollutants, more frequent calibration may be necessary. Calibration can be carried out by the user onsite, or in the laboratory or workshop. The electronics do not normally need to be calibrated, and cannot be repaired in the field. In case of problems, get in touch with Rotronic AG Service.

6.1 TROUBLE SHOOTING

Error	Messages	Solution
E01	CO ₂ sensor is out of order	Turn off meter and re-start again
E33	CO ₂ sensor is out of order	Retry CO ₂ calibration
E02	Measured value is under range	Put meter in normal condition
E03	Measured value is under range	Put meter in normal condition
E11	RH calibration error	Retry humidity calibration
E31	Temp. sensor or AD damaged	Return for repair
E32	Memory IC damaged	Return for repair
E33	RH sensor or circuit damaged	Return for repair

6.2 TECHNICAL DATA (OPERATION)

Temperature	0...50 °C
Humidity	0...100 %RH, non-condensing
CO ₂	0...2000 ppm or 0...5000 ppm
Precision %RH (10...90 %RH)	< 3 %RH
Precision °C at 23 °C ± 5 K	± 0.3 K
	± 1 K Type S with display
Precision CO ₂ (0...2000 ppm)	± 40 ppm ± 3 % of the measured value
(0...5000 ppm)	± 10 % of the measured value

6.3 SCALING THE ANALOG OUTPUT SIGNALS

Humidity	0..100 %RH
Temperature	-100...250 °C
CO ₂	0...2000 ppm or 0...5000 ppm
Outputs	Current or voltage signal
Relay	Each parameter can be set via software