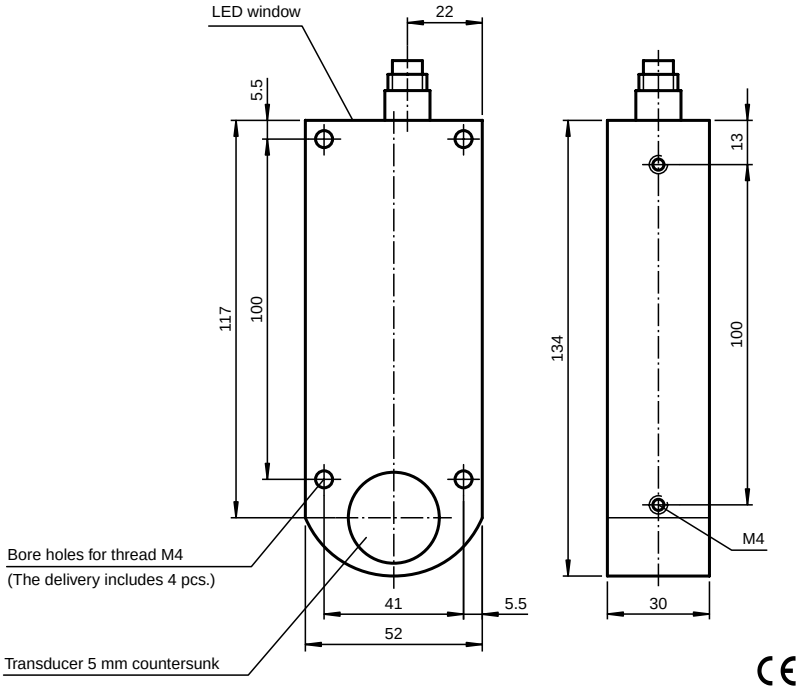
## Twin-head system

## UC300-F43-2KIR2-V17

## Dimensions




## Features

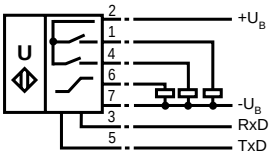
- Current output
- 2 Relays
- Serial Interfaces
- Temperature compensation
- Watchdog
- Reverse polarity protection
- Parameterisable

## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Sensing range | | 0 ... 300 mm |
| Standard target plate | | 100 mm x 100 mm |
| Unusable area | | 0 mm |
| Transducer frequency | | approx. 380 kHz |
| Response delay | | minimum (EM; NONE): ≤20 ms (2 measuring cycles)<br>factory setting (EM, MXN, 5, 2): ≤60 ms (6 measuring cycles)<br>dynamic (EM,DYN): ≤30 ms (3 measuring cycles) |
| Standard conformity | | EN 60947-5-2 |
| **Indicating/Operating means** | | |
| LED green | | continuous: object in the measuring window<br>flashing: object outside the measuring window |
| LED red | | error (e. g. interference level too high) |
| **Electrical specifications** | | |
| Rated operational voltage $U_e$ | | 10 ... 30 V DC without current output function<br>15 ... 30 V DC with current output function<br>Ripple ±10 $\%_{SS}$ |
| Power consumption | $P_0$ | ≤ 2 W (all relays pulled-in, current output 20 mA)<br>no-load power consumption ≤ 0.7 W |
| **Output** | | |
| Output type | | 2 relay outputs, 1 analogue output 4 ... 20 mA |
| Contact loading | | 60 V DC / 1 A (max. 24 W DC), ohmic |
| Lifetime | | electrical: 3 x $10^5$ operating cycles at ohm. Load (1 A / 24 V DC)<br>mechanical: $10^7$ operating cycles |
| Range hysteresis | H | 0 ... 15 % Parameterisable |
| Repeat accuracy | | ≤ 0.1 % |
| Resolution | | 0.17 mm |
| Load impedance | | current output: ≤ 500 Ohm |
| Deviation of the characteristic curve | | < 0.2 % of final value |
| Temperature influence | | ≤ 2 %, internal temperature compensation |
| **Interface** | | |
| Interface type | | RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit |
| **Ambient conditions** | | |
| Ambient temperature | | 0 ... +70 °C (273 ... 343 K) |
| Storage temperature | | -40 ... +85 °C |
| **Mechanical specifications** | | |
| Protection degree | | IP65 according to EN 60529 |
| Connection type | | 8-pin round connector, Lumberg type RSF 8 |
| Material | | |
| Housing | | PBT |
| Mass | | 290 g |

## Electrical connection

**Standard symbol/Connection:**

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## Note

Thanks to its extensive command set, the sensor can be configured to suit the application via the RS 232 interface.

### RS 232 command set (overview)

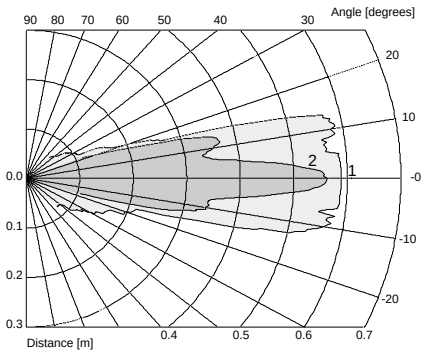
| Command | Meaning | Parameter | Access |
|---|---|---|---|
| VS0 | **V**elocity of **S**ound at **0** °C | Velocity of sound at 0 °centigrade VS0 in [cm/s] {10000 ... 60000) | read and set |
| VS | **V**elocity of **S**ound | Velocity of sound VS in [cm/s] | read |
| TO | **T**emperature **O**ffset | TO in [0.1K] | read and set |
| TEM | **TEM**perature | TEM in [0.1K] | read and adapt to TO |
| REF | **REF**erence measurement | REF distance in [mm] {0 ... 600} | adaptation of VS0 |
| SD1 | **S**witching **D**istance **1** | Switching point, relay 1 SD1 in [mm] {0 ... 600} | read and set |
| SD2 | **S**witching **D**istance **2** | Switching point, relay 2 SD2 in [mm] {0 ... 600} | read and set |
| SH1 | **S**witching **H**ysteresis **1** | Hysteresis, relay 1 in [%] {0 ... 15} | read and set |
| SH2 | **S**witching **H**ysteresis **2** | Hysteresis, relay 2 in [%] {0 ... 15} | read and set |
| NDE | **N**ear **D**istance of **E**valuation | Near measuring window limit in [mm] {0 ... 600} | read and set |
| FDE | **F**ar **D**istance of **E**valuation | Far measuring window limit in [mm]{0 ... 600} | read and set |
| BR | **B**lind **R**ange | Unusable area in [mm] {0 ... 600} | read and set |
| CBT | **C**onstant **B**urst **T**ime | Burst length in [µs] {0,1, 2, 3} | read and set |
| CCT | **C**onstant **C**ycle **T**ime | Time in [ms] {0 ... 1000} | read and set |
| FTO | **F**ilter **T**ime**O**ut | Number of measurements without echo to be filtered {0 ... 255} | read and set |
| EM | **E**valuation **M**ethod | Evaluation method { 0 = NONE; PT1[,f,p,c]; MXN[,m,n]; DYN[,p] } | read and set |
| CON | **CON**servative filter | Counter threshold as number {0 ... 255} | read and set |
| OM | **O**utput **M**ode | OM coded [normally-open NO = 0, normally-closed NC = 1] | read and set |
| FSF | **F**ail **S**afe **F**unction | Failure function type e.g. FSF,11,35 {0,1,2}, [fault current in 0.1 mA] | read and set |
| MD | **M**aster **D**evice | Function as master {0 = NONE},AD,RD,RT,SS,ADB,RDB,RTB } | read and set |
| MA | **M**ain **A**pplication | Determines whether the green LED orients itself according to NDE, FDE or SD1 and SD2 | read and set |
| NEF | **N**o **E**cho **F**ailure | Sensor behavior when no echo is present {0,1} | read and set |
| AD | **A**bsolute **D**istance | Distance in [mm] | read |
| RD | **R**elative **D**istance | Relative distance as number {0 ... 4095} | read |
| RT | **R**un**T**ime | Echo run time in machine cycles [1 machine cycle = 1.085 µs] | read |
| SS1 | **S**witching **S**tate **1** | SS1 binary [0: inactive, 1 active] (independent of OM) | read |
| SS2 | **S**witching **S**tate **2** | SS2 binary [0: inactive, 1 active] (independent of OM) | read |
| ADB | **A**bsolute **D**istance **B**inary | Distance in [mm] not as ASCII | read |
| RDB | **R**elative **D**istance **B**inary | Relative distance as number {0 ... 4095} not as ASCII | read |
| RTB | **R**un**T**ime **B**inary | Echo run time in machine cycles [1 machine cycle = 1.085 µs] not as ASCII | read |
| ER | **E**cho **R**eceived | Echo detected: no, yes [0/1] | read |
| VER | **VER**sion | Version string: **xxxx** | read |
| ID | **ID**entification | ID string: **P&F UC300-F43-2KIR2-V17...** | read |
| DAT | **DAT**e | Date string: e.g. **Date: e.g. 04/12/99 Time: 11:14:35** | read |
| ST | **ST**atus | Status as hexadecimal string | read |
| RST | **R**e**S**e**T** | Performs a reset | Command |
| DEF | **DEF**ault settings | Restores defaults | Command |
| SUC | **S**tore **U**ser **C**onfiguration | Stores all settings | Command |
| RUC | **R**ecall **U**ser **C**onfiguration | Restores stored settings | Command |

## Model number

**UC300-F43-2KIR2-V17**

## Characteristic curves/ Additional information

### Characteristic response curves




Curve 1: flat plate 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

### Basic setting

**OM:**
Relay 1: NO
Relay 2: NO

**SD1/SD2:**
Switch point relay 1 = 25 mm
Switch point relay 2 = 50 mm

**NDE/FDE:**
Analogue output: 4 mA ⇒ 25 mm
20 mA ⇒ 300 mm

**FSF:**
Error ⇒ Relay 1 and 2: latest state
⇒ Analogue output: $I_{OUT}$ = 3,9 mA

**NEF:**
No echo ⇒ error message

**MA,S:**
Switching mode

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