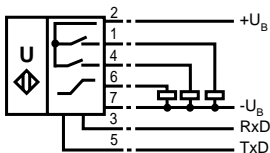## Twin-head system

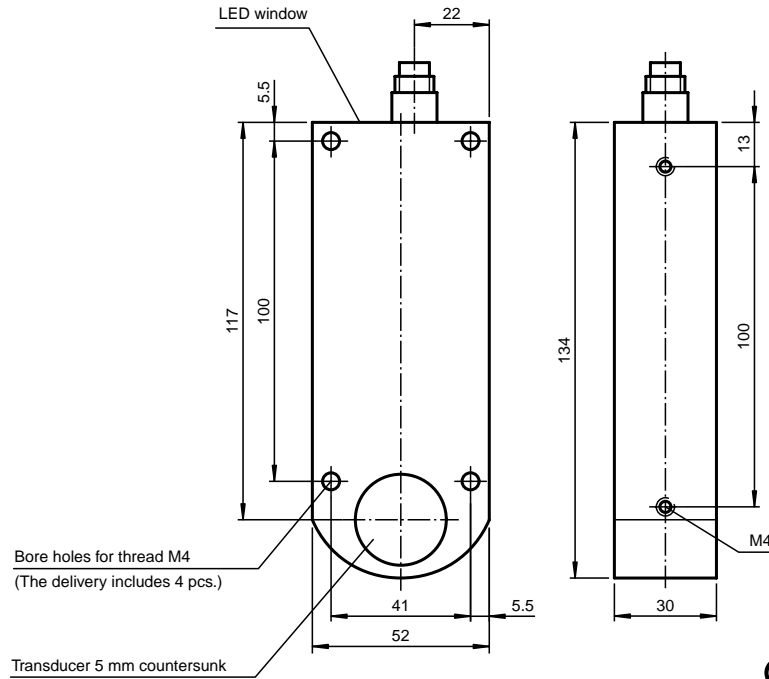## UC300-F43-2KIR2-V17

Features

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

Electrical connection

Standard symbol/Connection:

Dimensions

LED window

Bore holes for thread M4
(The delivery includes 4 pcs.)

Transducer 5 mm countersunk

CE

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)
	factory setting (EM, MXN, 5, 2): ≤60 ms (6 measuring cycles)
	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
	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
	15 ... 30 V DC with current output function
	Ripple ±10 %$_{SS}$
Power consumption P_0	≤ 2 W (all relays pulled-in, current output 20 mA)
	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)
	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

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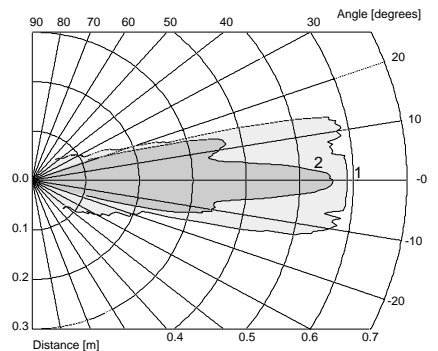
Curve 1: flat plate 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

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: Iout = 3,9 mA

NEF:
No echo ⇒ error message

MA,S:
Switching mode