CE

Model Number

UJ3000+U1+8B+RS

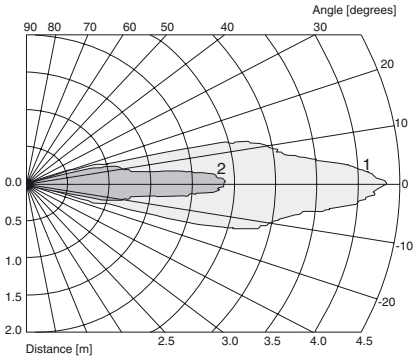
Single head system

Features

- **8 bit output**
- **Absolute polarity reversal protection**
- **Test input**
- **Fault output**
- **Serial interface**
- **Programmable with ULTRA 3000**

Curves

Characteristic response curves



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

Technical data

General specifications	
Sensing range	300 ... 3000 mm
Unusable area	0 ... 300 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 130 kHz
Response delay	static 4: ≤ 280 ms (factory setting) static 1: ≤ 70 ms dynamic; ≤ 100 ms
Indicators/operating means	
LED red/green	green LED: Power on red LED, flashing at 2 Hz: error (high level of external noise)
Electrical specifications	
Operating voltage U_B	20 ... 30 V DC , ripple 10 $\%_{SS}$
No-load supply current I_0	≤ 90 mA
Interface	
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit
Input	
Input type	1 test input, (-U_B + 5 V) up to +U_B, ≤100 kOhm
Output	
Output type	8 bit output for outputting object distance, pnp 1 fault output, pnp NC
Rated operational current I_e	20 mA , short-circuit/overload protected
Voltage drop U_d	U_{in} - 4 V
Resolution	11 mm , (corresponding to 1 LSB)
Repeat accuracy	11 mm , (corresponding to 1 LSB)
Range hysteresis H	11 mm , (corresponding to 1 LSB)
Temperature influence	0.17 % / K
Ambient conditions	
Ambient temperature	-10 ... 50 °C (263 ... 323 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
Mechanical specifications	
Protection degree	IP65
Connection	2 m, cable, 14 x 0.14 mm^2, cast terminal compartment
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass	290 g
Compliance with standards and directives	
Standard conformity	
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

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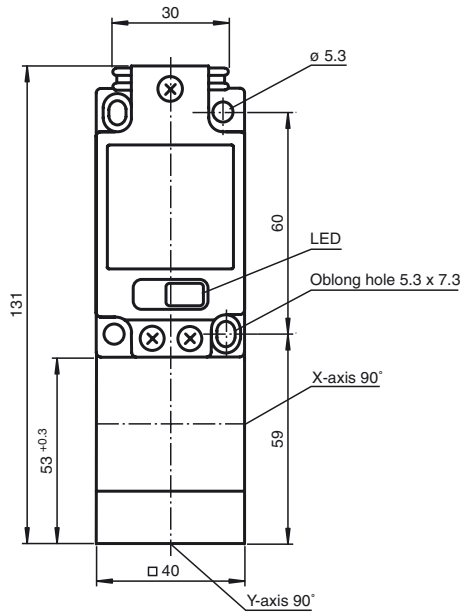
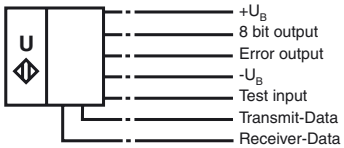
Dimensions



Electrical Connection

Standard symbol/Connection:



Legend:

$+U_B$ = Brown	Test input = Grey/Pink
$-U_B$ = Blue	Error output = Red/Blue

Interface:
Receiver-Data RD = White/Green
Transmit-Data TD = Brown/Green
8 bit output:

A1 = White	A2 = Yellow
A3 = Pink	A4 = Red
A5 = Green	A6 = Grey
A7 = Black	A8 = Violet

Description of the sensor functions

The measurement of the distance is realised using the echo time of the ultrasonic pulse. The µ processor calculates the distance on the basis of the echo time and the speed of sound. The distance is directly issued in parallel in the form of an 8-bit data word.

A serial interface (RS 232, 9 600, n, 8, 1) is also available.

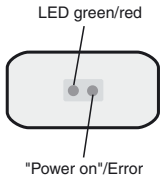
The output functions can be set up flexibly. For further information on the sensor's command set, please see the publication "Command Set for Ultrasonic Sensors with RS 232 interface".

In the event of interference that the sensor cannot handle, the sensor goes into failure mode in that the failure output opens and the 8-bit output retains the most recent measuring value. The dual LED goes into the red flashing state.

A 1 level at the test input causes the 8-bit output to switch from 00000000 to 11111111 and back every 200 ms.

Additional Information

LED-Window



Accessories

MH 04-2681F
Mounting aid

ULTRA3000
Software for ultrasonic sensors, comfort line

UC-FP/U9-R2
Accessories

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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
VS	**V**elocity of **S**ound	VS in [cm/s]	read
NDE	**N**ear **D**istance of **E**valuation	Near measuring window limit in [mm]	read and set
FDE	**F**ar **D**istance of **E**valuation	Far measuring window limit in [mm]	read and set
BDE	**B**oth **D**istances of **E**valuation	Both evaluation distances at once [mm]	read and set
REF	**REF**erence measurement	REF distance in [mm]	read and set
UDS	**U**se **D**IP **S**witches	UDS binary [0/1]	read and set
FTO	**F**ilter **T**ime**O**ut	Number of measurements without echo to be filtered	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	read and set
FA1	**F**ilter **A**ctive **1**	Activate [1] or disable [0] filter	read and set
FW	**F**ilter **W**indow	Tolerance for current measurement value {5 ... 25} in [%]	read and set
OM	**O**utput **M**ode	OM coded [close NO = 0, open NC = 1]	read and set
ODF	**O**utput **D**ata **F**ormat	Data format of the 8-bit output [8-bit = 8B, BCD format = BCD]	read and set
MD	**M**aster **D**evice	Function as master {0 = NONE}, AD,RD,RT,SS,ATB,RDB,RTB	read and set
CCT	**C**onstant **C**ycle **T**ime	Time in [ms]	read and set
CBT	**C**onstant **B**urst **T**ime	Burst time in [µs]	read and set
RT	**R**andom **T**ime	Random length pause after each measurement [0 = no pause, 1 = pause]	read and set
DIP	Read **DIP** switches	DIP switch setting as hexadecimal string	read
AD	**A**bsolute **D**istance	Distance in [mm]	read
RD	**R**elative **D**istance	Relative distance as number {0 ... 4095}	read
OER	**O**bject in **E**valuation **R**ange	Object within evaluation range (0 = no, 1 = yes)	read
ODR	**O**bject in **D**etection **R**ange	Object within detection range (0 = no, 1 = yes)	read
ER	**E**cho **R**eceived	Echo detected: no, yes [0/1]	read
VER	Sensor **VER**sion	Version string: xxxx	read
ID	Sensor **ID**entification	ID string: P&F UC...-..-IUE0/E2-R2 Eprom: xxxx Version yyyy	read
DAT	Software **DAT**e	Date string: e.g. Date: 06/11/96 Time: 16:14:26	read
FT	**F**unction **T**est	Self test, sensor returns fault code	read
RST	**ReSeT**	Performs a reset	Command
DEF	**DEF**ault settings	Restores defaults	Command

Programming notes

Electrical connection of interface cable UC-FP/U9-R2 (see accessories).

Interface cable Conductor colour	Sensor terminal compartment Terminal no.
Brown (TD)	4 (RD)
Black (RD)	2 (TD)
Blue (GND)	3 (-U_B)

Filter function structure:

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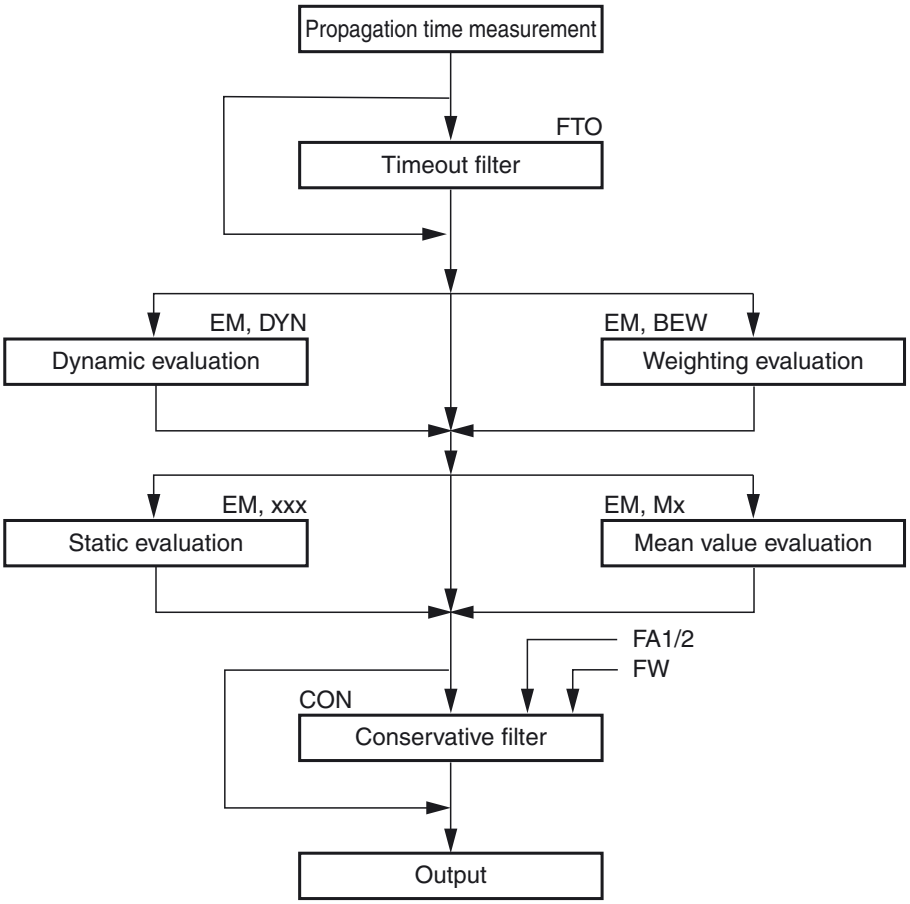

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