wenglor
the innovative family

OPT2011

High-performance distance sensor

Operating Instructions

Available as PDF only
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www.wenglor.com

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1. Use for Intended Purpose

This wenglor product has to be used according to the following functional principle:
High-performance distance sensor
High-performance distance sensors which use the principle of transit time measurement determine the distance between the sensor and the object according to the principle of transit time measurement. These sensors have a large working range and are therefore able to detect objects over large distances.
Selected sensors are distinguished by WinTec (wenglor interference free technology). This technology allows black or shiny surfaces to be reliably detected even in extremely inclined positions. It is possible to mount several sensors next to or across from each other without them influencing each other.

2. Safety Precautions
2.1. Safety Precautions

• This operating instruction is part of the product and must be kept during its entire service life.
• Read this operating instruction carefully before using the product.
• Installation, start-up and maintenance of this product has only to be carried out by trained personal.
• Tampering with or modifying the product is not permissible.
• Protect the product against contamination during start-up.
• Not a safety component in accordance with the EU Machinery Directive.

2.2. Laser/LED warning

LASER CLASS 1
EN60825-1
2007

Class Laser 1 (EN 60825-1)
Observe all applicable standards
and safety precautions.

3. EC Declaration of Conformity

The EC declaration of conformity can be found on our website at www.wenglor.com in download area.

$C\epsilon$ ⟨III⟩ c(UL)us LISTED IND. CONT. EQ. 72HL For use in class 2 circuits Environmental Type 1 ✔ **RoHS**

4. Device Features

Order Number	OPT2011
Working Range	50...3050 mm
Measuring Range	3000 mm
Reproducibility	1 mm
Linearity Deviation (200…3050 mm)	7 mm
Linearity Deviation (50…200 mm)	15 mm
Switching hysteresis	3…20 mm
Light Source	Laser light (red)
Laser Class	1
Supply Voltage	18…30 V DC
Current Consumption (Ub = 24 V)	< 70 mA
Switching Frequency	250 Hz
Response Time	2 ms
Temperature Drift ($-10° < Tu < 50°$)	< 0,2 mm/K
Temperature Drift ($Tu < -10°$)	< 0,4 mm/K
Temperature Range	$-40\ °C…50\ °C$
Voltage Drop	< 2,5 V
Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity and Overload Protection	yes
Protection Class	III
Protection	IP68
Connection	M12 $\times$ 1; 4-pin

Measuring Range:
The Sensors' measuring range is determined by object remission.

Maximum range of   up to 3 m on white (90 % remission)
up to 3 m on grey (18 % remission)
up to 2 m on black (6 % remission)

Light Spot Diameter

Working Distance	0	3 m
Light Spot Diameter	5 mm	9 mm

Dependence of Hysteresis and reproducibility on the Sampling Rate on white (90 % Remission)

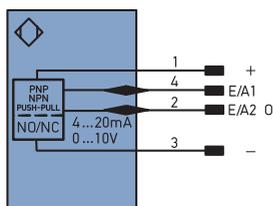|	OPT2011	
Set Filter	Default setting for min. hysteresis in mm	Reproducibility in mm
1	20	15
2	16	10
Default Settings 5	12	8
10	10	6
20	8	5
50	6	4
100	5	3
200	4	2
500	3	1

Power-on Drift

The following table provides information on the power-on drift during the warm-up phase.

Time in min	0	1	2	5	10
Power-on drift in mm	±7	±5	±4	±2	±0

4.1. Connecting the Sensor

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Legend

+	Supply Voltage +	
−	Supply Voltage 0 V	
~	Supply Voltage (AC Voltage)	
A	Switching Output	(NO)
Ā	Switching Output	(NC)
V	Contamination/Error Output	(NO)
V̄	Contamination/Error Output	(NC)
E	Input (analog or digital)	
T	Teach Input	
Z	Time Delay (activation)	
S	Shielding	
RxD	Interface Receive Path	
TxD	Interface Send Path	
RDY	Ready	
GND	Ground	
CL	Clock	
E/A	Output/Input programmable	
◉	IO-Link	
PoE	Power over Ethernet	
IN	Safety Input	
OSSD	Safety Output	
Signal	Signal Output	
BI_D+/−	Ethernet Gigabit bidirect. data line (A-D)	

PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
O	Analog Output
O−	Ground for the Analog Output
BZ	Block Discharge
AMW	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
E+	Receiver-Line
S+	Emitter-Line
⏚	Grounding
SnR	Switching Distance Reduction
Rx+/−	Ethernet Receive Path
Tx+/−	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(−)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring
ENARS422	Encoder A/Ā (TTL)

ENA	Encoder A
ENB	Encoder B
AMIN	Digital output MIN
AMAX	Digital output MAX
AOK	Digital output OK
SY In	Synchronization In
SY OUT	Synchronization OUT
OLT	Brightness output
M	Maintenance
rsv	reserved

Wire Colors according to
DIN IEC 757

BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink

4.2. Housing Dimensions
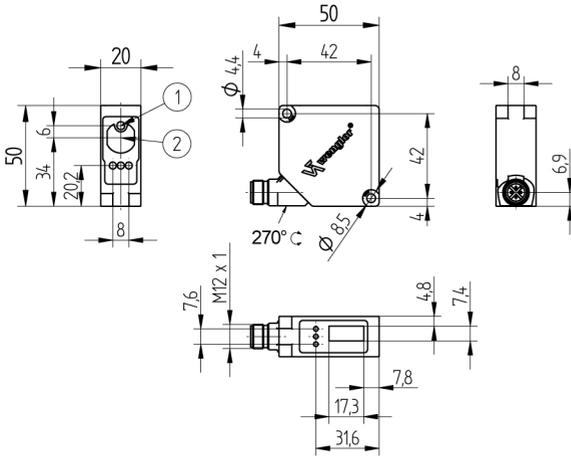
1 = Transmitter Diode
2 = Receiver Diode

4.3. Control Panel
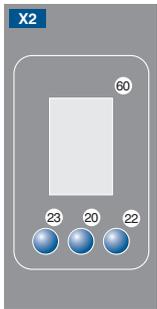
20 = Enter Button
22 = Up Button
23 = Down Button
60 = Display

01 = Switching Status Indicator
02 = Contamination Warning
68 = Supply Voltage Indicator

5. Mounting instructions

During operation of the Sensors, the corresponding electrical and mechanical regulations, as well as safety regulations must be observed. The Sensor must be protected from mechanical impact. The Sensor has optimal ambient light characteristics if the background changes within the Working Range.

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6. Initial Operation

6.1. Initial Operation

Before the configuration, connect the Sensor to 18…30 V DC.
The desired menu language must be selected after initial start-up, and after each reset (see fig. 1).

Fig. 1: Set menu language

The functions of the keys appear in the display as follows:
- ▲   : Navigate up.
- ▼   : Navigate down.
- ↵   : Selection is acknowledged with the enter key.

The keys within a menu item can also be assigned to letters or other symbols such as "+" and "−". You can keep the "+" or "−" key pressed for a longer time in order to make larger numerical jumps.

Meaning of the menu items:
◂ Back: one level higher in the menu.
◂◂ Run: switch to delay mode.
Switch to the configuration menu by pressing any key.

Note:
If no settings are adjusted in the configuration menu for a period of 30 s, the Sensor is automatically returned to the read-out view. The Sensor accesses the last used menu view when a key is once again activated.
If a setting is adjusted, it becomes active when the configuration menu is exited.

Important:
Do not use any sharp objects to press the keys when configuring settings, because they might otherwise be damaged.

6.2. Default Settings

		OPT2011
Pin Function	E/A 1	Switching output
	E/A 2	Analog output
Outputs	Teach Mode	T Foreground
	Switching threshold	1000 mm
	Switching Hysteresis	12 mm
	Window Size	50 mm
	PNP/NPN	PNP
	NO/NC	NO
	On-Delay	0 ms
	Off-Delay	0 ms
	Impulse	0 ms
Analog	U/I	I
	4 mA	50 mm
	20 mA	3050 mm
Display	Mode	Switch
	Intensity	Screensaver
Expert menu		Off
Filter		5
Laser		On
Language		English
Password	Enable	Off
	Enter	O

7. Functional Overview

Run		
Pin Function	E/A1 - - - - - E/A2 - - - - -	○ Switch ○ Error ○ Contaminate ○ Analog** ○ Laser ○ Ext T Ax

Depends on pin function E/A1:
A1 Switch
A1 Error
A1 Contaminate
E1 Laser
E1 Ext T A2

Depends on pin function E/A2:
A2 Switch
A2 Error
A2 Contaminate
A2 Analog
E2 Laser
E2 Ext T A1

If Switching Output

T Foreground - - -	**Press <T>** **for Teach-In**
T Background - - -	
T Window - - - - -	
Poti - - - - -	Value in mm
Hysteresis - - - - - -	Value in mm
Window size* - - -	Value in mm
NPN/PNP - - - - -	○ PNP ○ NPN ○ Pushpull
NO/NC - - - - -	○ NO ○ NC
ON Delay - - - - -	Value in ms
OFF Delay - - - - -	Value in ms
Impulse - - - - -	Value in ms
T Extern - - - - -	○ T Foreground ○ T Background ○ T Window

If Error Output or Contamination Output

NPN/PNP - - - - -	○ PNP ○ NPN ○ Pushpull
NO/NC	

If Input

○ **Ub active**
○ **Ub inactive**

If analog Output*

Analog

Mode U/I - - - - -	Select U or I
Teach-In - - - - -	Measuring Range Teach-In
At 0 V* - - - - -	Value in mm
At 10 V* - - - - -	Value in mm
At 4 mA* - - - - -	Value in mm
At 20 mA* - - - - -	Value in mm

Display

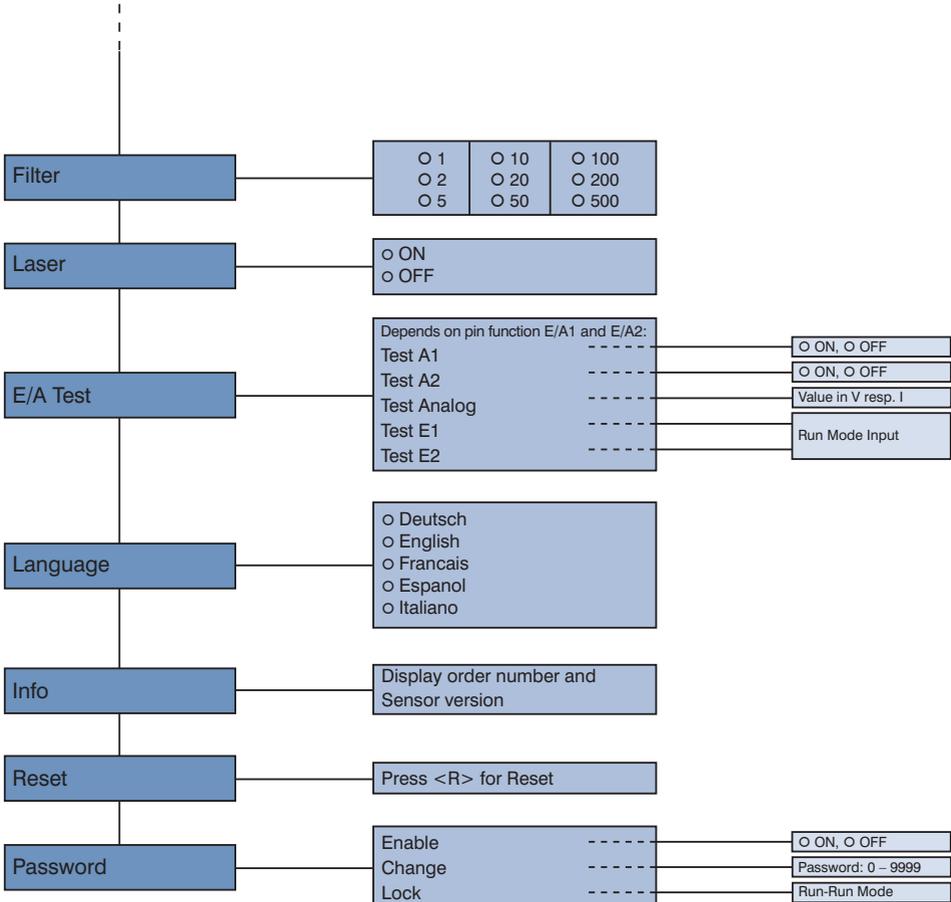|	
Mode - - - - -	○ Switch ○ Analog
Rotate	
Intensity - - - - -	○ Min ○ Normal ○ Max ○ Power save ○ Screensaver

Expert Menu

○ **ON**
○ **OFF**

Menu items that are presented in **bold** are always displayed in the menu.
The other menu items appear only when the Expert Menu is activated.

*   Visibility depends on the selected settings (see details in the respective section)
**   can only be selected for E/A2

Filter		1	10	100
		2	20	200
		5	50	500

Laser
- ON
- OFF

E/A Test

Depends on pin function E/A1 and E/A2:

Test A1	- - - - -	ON, OFF
Test A2	- - - - -	ON, OFF
Test Analog	- - - - -	Value in V resp. I
Test E1	- - - - -	Run Mode Input
Test E2	- - - - -	

Language
- Deutsch
- English
- Francais
- Espanol
- Italiano

Info

Display order number and Sensor version

Reset

Press <R> for Reset

Password

Enable	- - - - -	ON, OFF
Change	- - - - -	Password: 0 – 9999
Lock	- - - - -	Run-Run Mode

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The following explains the functions behind the individual menu items.

7.1. Run

The Sensor switches into display mode.

Bar graph display of the current measured value relative to the measuring range

Selected pin function E/A1 (E/A2) with respective status

A1   AN

1500 mm — Current measured value in mm
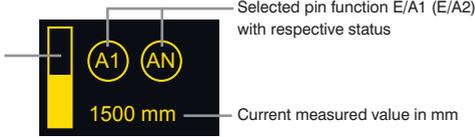
The set function of the pins is symbolically shown as follows:

(AN) Analog output

(A1) (A2) Switching output A1 or A2

(F) Error output

(C) Contamination output

(La) Laser shut-off

(T1) (T2) Teach input for A1 or A2

7.2. Pin Function

The Pin Function serves to determine the function of the pins E/A1 or E/A2. The pins can each take on different functions.

E/A1	Configuration of pin E/A1
O Switch	**Switch:** Switching output
O Error	**Error:** Error output
O Contaminate	**Contaminate:** Contamination output
O Laser	**Laser:** Input for switching the transmission light on and off
O Ext T A2	**Ext T A2:** Teach input for A2
◀ Back	
◀◀ Run	

E/A2	Configuration of pin E/A2
O Switch	**Switch:** Switching output
O Error	**Error:** Error output
O Contaminate	**Contaminate:** Contamination output
O Analog	**Analog:** Analog output
O Laser	**Laser:** Input for switching the transmission light on and off
O Ext T A1	**Ext T A1:** Teach input for A1
◀ Back	
◀◀ Run	

7.3. Function of E/A1 and E/A2

Depending on the pin function that has been set, the selected name is displayed for the menu item, e.g., A1 Switch or E1 Laser. The menu items each contain the following sub-items:

For switching output
If the pin is set as a switching output, the following functions can be set:

A1 Switch/A2 Switch	Sensor settings for switching outputs
T Foreground	**T Foreground:** Teach-In from object
T Backgrnd	**T Backgrnd:** Teach-In from background
T Window	**T Window:** Teach-In from window in which the Sensor switches
T Extern	**T Extern:** Define Teach mode for external Teach-In
Poti	**Poti:** Recalibrate the switching point
Hysteresis	**Hysteresis:** Change the difference between the switch-on and the switch-off points
Window size	**Window size:** Change the distance between the two switch-off points
NPN/PNP	**NPN/PNP:** Configuration of the output
NO/NC	**NO/NC:** Configuration of the output
ON Delay	**ON Delay:** Response time delay (only visible if Expert menu "On")
OFF Delay	**OFF Delay:** Fall time delay (only visible if Expert menu "On")
Impulse	**Impulse:** Pulse length (only visible if Expert menu is "On")
◀ Back	
◀◀ Run	

These menu items will be described in more detail in chapters 7.3.1 to 7.3.12.

For error or contamination output
If the pin is set as an error or contamination output, the following functions can be set.

A1 Error (Example)	A1 or A2 as an error or contamination output
NPN/PNP	**NPN/PNP:** Configuration of the output
NO/NC	**NO/NC:** Configuration of the output
◀ Back	
◀◀ Run	

You can find explanations of "NPN/PNP" in chapter 7.3.7 on page 16. You can find explanations of "NO/NC" in chapter 7.3.8 on page 17.

For Laser Switch-off, Extern Teach
If the pin is used as an input, e.g., for switching off the laser. It is possible to set whether the input is active at Ub or at 0 V.

E1 Laser (Example)	Setting E1 or E2
O Ub active	**Ub active:** The input is activated if the supply voltage (Ub) is present
O Ub inactive	**Ub inactive:** The input is activated if no voltage is present
◀ Back	
◀◀ Run	

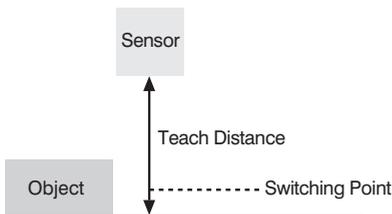# EN

7.3.1. Switching Output Foreground Teach-In

Teach-In is performed while the sensor spot is aligned to the object. The switching distance is then automatically set to a distance which is slightly greater than the clearance between the sensor and the object. The sensor is thus activated for all objects whose distance to the sensor is equal to or less than the distance to the object used for the Teach-In procedure.
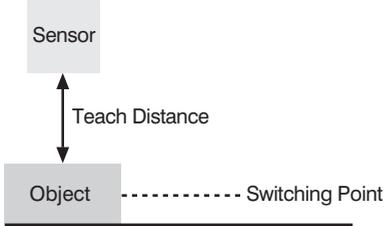
T Foreground	Foreground Teach-In
Press <T> for Teach-In	Teach-In Foreground process 1) Align light spot to object. 2) Press "T" key. The switching point is learned. **Note:** • The switching point can be recalibrated in the menu item **Poti** (see chapter 7.3.4 if needed. • The switching hysteresis can be modified in the menu item **Hysteresis** (see chapter 7.3.5) if needed.

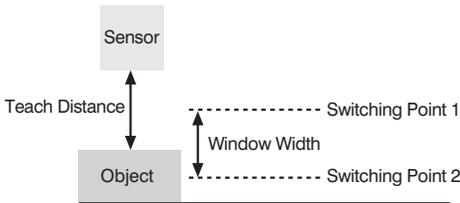### 7.3.2. Switching Output Background Teach-In

Teach-In is performed while the sensor spot is aligned to the background. The switching distance is then automatically set to a distance which is slightly less than the clearance between the sensor and the background. The sensor is thus activated whenever an object is located between the background and the sensor.

T Backgrnd	Background Teach-In
Press <T> for Teach-In	Teach-In Background process 1) Align light spot to background (e.g., on conveyor belt). 2) Press "T" key. −> The switching point is learned. **Note:** • The switching point can be recalibrated in the menu item Poti (see chapter 7.3.4) if needed. • The switching hysteresis can be modified in the menu item Hysteresis (see chapter 7.3.5) if needed.

7.3.3. Switching Output Window Teach-In

In case of the Window Teach-In there are two switching points. The difference between the two switching points is referred to as a window. The size of the window is referred to as window width. The sensor is activated when an object is positioned within the window.

Sensor

Teach Distance
- - - - - - - - - Switching Point 1

Window Width

Object
- - - - - - - - - Switching Point 2

T Window	Window Teach-In
Press <T> for Teach-In	Teach-In Window process 1) Align light spot to foreground (if present) or to object. 2) Press "T" key. −> The switching points are learned. **Note:** • The Window Size variable can be increased or decreased in the menu item Window (see chapter 7.3.6). 50 mm is the preset. • The center of the window can be readjusted in the menu item Poti (see chapter 7.3.4) if needed. The two switching points are alternately displayed in this process. • The switching hysteresis can be modified in the menu item Hysteresis (see chapter 7.3.5) if needed.

Examples of applications:
Ex. 1: Recognition of objects that are very difficult to recognize visually, e.g., shiny black metal plates in an extremely slanted position in front of a background.
   −> Use Teach-In Background for this application.

Ex. 2: Distinction of objects, e.g., small and large packages on a conveyor belt.
   −> In this application, use Teach In to the object to be recognized, at which the Sensor is to switch.

7.3.4. Switching Output Poti

Potentiometer	Vary switching point
Switching point in mm	The switching point can be manually varied by pressing the "+" or "−" keys. You can keep a key pressed for a longer time in order to make larger numerical jumps.

7.3.5. Switching Output Hysteresis

The switching hysteresis is the difference between the switch-on and the switch-off points.

Hysteresis	Vary hysteresis
Hysteresis in mm	The hysteresis can be increased by pressing the "+" key. The hysteresis can be reduced by pressing the "−" key. The minimum hysteresis depends on the filter that has been set (see chapter "4. Device Features" on page 5). You can keep a key pressed for a longer time in order to make larger numerical jumps.

7.3.6. Switching Output Window Size

Note: The menu item is only visible if a Window Teach has been conducted.

| Window size	Vary window size
Window size in mm	The window size can be increased by pressing the "+" key. The window size can be reduced by pressing the "−" key. The minimum value that can be set is 10 mm. You can keep a key pressed for a longer time in order to make larger numerical jumps.

7.3.7. Switching Output NPN/PNP

NPN/PNP	Configuration of the outputs	
O PNP O NPN O Pushpull ◀ Back ◀◀ Run	**PNP:**	The load or the evaluation device is connected between the negative pole (reference) and the output. When switched, the output is connected via an electronic switch to the positive pole.
	NPN:	The load or the evaluation device is connected between the positive pole (reference) and the output. When the Sensor switches, the output is connected via an electronic switch to the negative pole.
	Pushpull:	Push-pull output. Functions like an electronic switch that selectively couples the output to the positive pole or the negative pole

7.3.8. Switching Output NO/NC

Configuration of the outputs	
	The output is set as a normally open contact by pressing the "NO" key. The output closes immediately when an object reaches the switching point.
	The output is set as a normally closed contact by pressing the "NC" key. The output opens immediately when an object reaches the switching point.

7.3.9. Switching Output Response Time Delay

The response time delay is an adjustable lengthening of the response time.
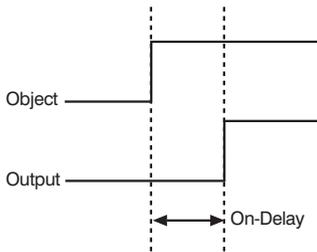
Note: The menu item is only visible if Expert Menu "On" has been set (see chapter 7.6 on page 20).

ON Delay	Adjust response delay time
ON Delay in ms	An output time delay of 0 to 10,000 ms can be set by pressing the "+" or "–" key. You can keep a key pressed for a longer time in order to make larger numerical jumps.

7.3.10. Switching Output Fall Time Delay

The fall time delay is an adjustable lengthening of the fall time.
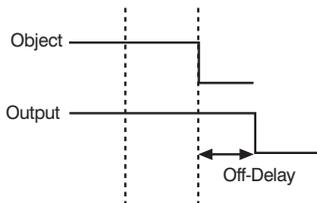
Note: The menu item is only visible if Expert Menu "On" has been set.

OFF Delay	Adjust fall time delay
OFF Delay in ms	A fall time delay can be set by pressing the "+" or "–" key. You can keep a key pressed for a longer time in order to make larger numerical jumps.

Note: If a pulse length has been set, a fall time delay cannot be set In this case the note "Pulse" appears in the control panel!

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7.3.11. Switching Output Pulse Length

The pulse length defines how long the switching state is held. The function can be combined with a response time delay.
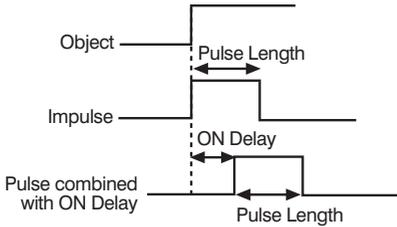
Note: The menu item is only visible if Expert Menu "On" has been set.

Pulse	Set pulse length
Pulse length in ms	A pulse length of 0 to 10000 ms can be set by pressing the "+" key or the "−" key. You can keep a key pressed for a longer time in order to make larger numerical jumps.

7.3.12. Switching Output Teach-In External

The teaching mode that the switching output is to have can be defined in this menu. Following a signal on a pin that has been set as the external teaching input for this switching output, a Teach-In is conducted in the set teaching mode.

T Extern	Teaching Mode for External Teach-In	
O T Foreground	**T Foreground:**	Foreground Teach-In
O T Backgrnd	**T Backgrnd:**	Background Teach-In
O T Window	**T Window:**	Window Teach-In
◀ Back		
◀◀ Run		

7.4. Analog

The menu item "A2 Analog" is present for the Sensor OPT2011 if pin 2 is set as an analog output.

Analog	Settings of the analog output
Mode U/I Teach-In At 0 V At 10 V At 4 mA At 20 mA ◄ Back ◄◄ Run	**Mode U/I:** Set analog output to a voltage or current output.. The analog output can be set as a voltage output by pressing the "U" key. and as a output by pressing the "I" key. **Teach-In:** Teach-In of the start and end of the measurement range, depending on the U/I mode set. By pressing the "T" key, the current distance is assigned the value 4 mA or 0 V. The value 20 mA or 10 V can be assigned to a distance by navigating downwards. The smallest measurement range that can be set is 50 mm. **At 0 V:** Distance at 0 V (visible in U mode) The distance assigned to the value 0 V can be recalibrated by pressing the "+" key or the "−" key. **At 10 V:** Distance at 10 V (visible in U mode) The distance assigned to the value 10 V can be recalibrated by pressing the "+" key or the "−" key. **At 4 mA:** Distance at 4 mA (visible in I mode) The distance assigned to the value 4 mA can be recalibrated by pressing the "+" key or the "−" key. **At 20 mA:** Distance at 20 mA (visible in I mode) The distance assigned to the value 20 mA can be recalibrated by pressing the "+" key or the "−" key.

7.5. Display

Display	Adjusting the display device
Mode Rotate Intensity ◄ Back ◄◄ Run	**Mode:** Select display mode (see chapter 7.5.1) **Rotate:** Rotate display by 180°. The display is rotated by 180° by pressing the ↵ key. The rotation is canceled by pressing this key again. **Intensity:** Set the display intensity (see chapter 7.5.2)

7.5.1. Display Mode

Mode	Select display mode
O Switch O Analog ◄ Back ◄◄ Run	**Switch:** The statuses of the individual inputs and outputs, and the measurement value in mm are shown in the display. **Analog:** The analog output value and the measurement value in mm are shown in the display.

7.5.2. Display Intensity

Intensity	Set the display intensity	
O Min	**Min:**	The intensity of the display is set to a minimum value.
O Normal	**Normal:**	The intensity of the display is set to a medium value.
O Max	**Max:**	The intensity of the display is set to a maximum value.
O Power save	**Power save:**	The display switches off after one minute without a button being pressed and automatically switches back on when a button is pressed.
O Screensaver		
◀ Back	**Screensaver:**	The colors of the display are inverted every minute.
◀◀ Run		

7.6. Expert Menu

Different menu items and sub-items appear in the menu, depending on whether the Expert Menu is "On" or "Off". The Expert Menu is off in the delivery state. The menu is thereby shorter and easier to use. If the existing menu items are not sufficient for the application solution, the Expert Menu can be switched on in order to use the full scope of Sensor functions.

Expert Menu	Switch Expert Menu on or off	
O OFF	**OFF:**	The Expert Menu is switched off and only a few menu items are visible.
O ON	**ON:**	The Expert Menu is switched on and all menu items are visible.
◀ Back		
◀◀ Run		

7.7. Filter

The filter (filter size) is the number of measurement values over which the Sensor takes an average. The larger the selected filter, the slower the response time of the Sensor becomes when there is change of the measurement values. A larger filter improves the reproducibility of the Sensor.

Note: The menu item is only visible if Expert Menu "On" has been set.

Filter	Number of values for averaging
O 1	If 1 is selected, each measurement value is output directly without averaging. Whenever a value greater than 1 is selected, the Sensor takes an average over the selected number of x measurement values, which is output every 2 ms at the output.
O 2	
O 5	
O 10	
O 20	
O 50	
O 100	
O 200	
O 500	
◀ Back	
◀◀ Run	

7.8. Laser

Transmitted light can be either deactivated or activated with the help of the **Laser** menu.

Note: The menu item is only visible if Expert Menu "On" has been set.

Laser	Switch transmitted light on or off
O ON O OFF ◀ Back ◀◀ Run	ON: Switch transmitted light on OFF: Switch transmitted light off; the Sensor no longer supplies measurement values.

7.9. E/A Test

This function manually changes the outputs, independently of the actual measurement value of the Sensor. In that way it is possible to check, for example, whether the outputs are properly connected to a controller or whether there is a fault on the cable that modifies the output value. It can likewise be tested whether a voltage is arriving at an input pin.

The test is automatically terminated when you leave the test menu.

Note: The menu item is only visible if Expert Menu "On" has been set. Only the functions for which the pin is set are displayed in each case.

E/A Test	E/A: Test of the inputs and outputs
Test A1 Test A2 Test Analog Test E1 Test E2 ◀ Back ◀◀ Run	Test A1: Test output 1 (see chapter 7.9.1) Test A2: Test output 2 (see chapter 7.9.2) Test Analog: Test analog output voltage or current, depending on analog mode U/I (see chapter 7.4) Test E1: Display whether 0 V or 24 V is present at input 1 Test E2: Display whether 0 V or 24 V is present at input 2

7.9.1. E/A Test – Test A1 or A2

Test A1/Test A2	Switch outputs on or off
O ON O OFF ◀ Back ◀◀ Run	ON: Switch output on (24 V) OFF: Switch output off (0 V)

7.9.2. E/A Test – Test Ana U or I

Test Ana U/Test Ana I	Output test values at the analog output
Voltage value in V or current value in mA	An analog value can be set by pressing the "+" or "−" key.

7.10. Language

The menu language can be changed in the menu item "Language". The user is automatically prompted for his desired language at initial operation and after each reset.

Note: The menu item is only visible if Expert Menu "On" has been set.

Language	Set menu language
O Deutsch O English O Francais O Espanol O Italiano ◂ Back ◂◂ Run	The menu appears in the selected language immediately after selection.

7.11. Info

Note: The menu item is only visible if Expert Menu "On" has been set.

The following information about the Sensor is displayed in the menu item "Info".

Info	
Order number Software version Serial number ◂ Back ◂◂ Run	

7.12. Reset

The Sensor setting can be reset to the delivery state in the menu item "Reset".
The settings in the delivery state can be found in chapter "6.2. Default Settings" on page 9.

Note: The menu item is only visible if Expert Menu "On" has been set.

Reset	Set back to the delivery state
Press <R> for Reset	The Sensor settings that have been made can be reset to the delivery state by pressing the "R" key.

7.13. Password

Password protection prevents against unintended changing of the set data.

Note: The menu item is only visible if Expert Menu "On" has been set.

Password	Set password functionality
Enable Change Lock ◄ Back ◄◄ Run	**Enable:** Turn password protection on or off. If password protection is acti-vated, the operation of the Sensor is disabled after supply power has been interrupted and is only enabled after successful password input. **Change:** Change password. **Lock:** Locking Sensor causes an immediate disabling of operation if Activate Password is set to "On".

If the password function has been activated, the password must be entered each time supply power to the Sensor is interrupted. After entering the correct password with the + or – key, the entire menu is enabled and the Sensor is ready for use.

• The password function is deactivated upon shipment from the factory.
• Passwords can be selected within a range of 0000 to 9999.

Be sure to make a note of the new password before exiting the "change password" function! If the password is forgotten, it must be overwritten with a master password. The master password can be requested by e-mail from **techbox@automationdirect.com.**

8. Maintenance Instructions

• This wenglor Sensor is maintenance-free.
• It is advisable to clean the lens and the display, and to check the plug connections at regular intervals.
• Do not clean with solvents or cleansers which could damage the device.

9. Proper Disposal

wenglor sensoric gmbh does not accept the return of unusable or irreparable products. Respectively valid national waste disposal regulations apply to product disposal.