% wenglor® Y1TA OY1TA603P0003

Lichtlaufzeitsensoren Transit Time Sensors



Bedienungsanleitung Operating Instructions

EN



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1. Use for Intended Purpose

The transmitter and the receiver are integrated into a single housing.

The Sensors measure the distance between the Sensor and the object.

They function in accordance with the principle of transit time measurement. For this reason, the object's color, shape and surface characteristics have practically no influence on measurement results. Even dark objects can be reliably recognized against bright backgrounds.

Large working ranges and distances are achieved by these Sensors.

The Sensors work directly onto the object.

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.
- · These products are not suited for safety applications.

2.2. Laser/LED warning

For the respective Laser/LED Class please view the technical data of the product.



Class Laser 1 (EN 60825-1)

Observe all applicable standards and safety precautions..

Class Laser 2 (EN 60825-1)

Observe all applicable standards and safety precautions. The enclosed laser warning labels must be attached and visible at all time. Do not stare into beam.

Caution: Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure







3. EC Declaration of Conformity

All proximity switches are developed, constructed and manufactured according to the directive 2004/108/EC. The following international standards and specifications apply:

EN 60947-5-2:2007Low-voltage switchgear and controlgear,
Part 5-2: Control circuit devices and switching elements – proximity switchesEN 60825-1: 2007Safety of laser devices

Inspection level III according to IEC 61000-4-4:2004 + C1:2006 + C2:2007 + A1:2010 in combination with Z0033 Any additional standards which are applicable for the given application must be observed.





4. Device Features

	Y1TA100	Y1TA100	Y1TA100	Y1TA100	OY1TA603
Optical Data	MHT88	MHV80	QXVT80	QXT3	P0003
	at object				
Working range	0,110,1 m	0,110,1 m	0,110,1 m	0,110,1 m	0,26,2 m
Measuring range	10 m	10 m	10 m	10 m	6 m
Linearity 0,15 m	0,05 %	0,05 %	0,2 %	0,2 %	0,2 %
Linearity 510 m	0,2 %	0,2 %	0,2 %	0,2 %	0,2 %
Switching hysteresis	320 mm				
Light Source	Laser (red)				
Wave Length	660 nm				
Service life (amb. temp. = 25°C)	100000 h				
Laser Protection Class (EN60825-1)	2	2	2	2	1
Beam Divergence	<2 mrad				
Electrical Data					
Supply Voltage*	1830 V DC				
Current Consumption (operating voltage = 24 V)	<100 mA				
Switching Frequency	50 Hz				
Response Time	10200 ms				
Sampling Rate	1100/s	1100/s	1100/s	1100/s	1100/s
Temperature Drift	<0,2 mm/k				
Temperature Range	–25…60 °C				
Number of switching outputs configurable as PNP NPN or push-pull	2	3	3	2	2
Switching Output Voltage Drop	<2,5 V				
Switching Output Switching Current	200 mA				
Error Output	yes	yes	yes	yes	yes
Error Output Switching Current	200 mA				
Analog Output	010 V				
Current Load Voltage Output	<1 mA	<1 mA	<0,5 mA	<0,5 mA	<0,5 mA
Analog Output	420 mA				
Current Output Load Resistance	<500 Ω				
Short Circuit Protection	yes	yes	yes	yes	yes
Reverse Polarity Protection	yes	yes	yes	yes	yes
Overload Protection	yes	yes	yes	yes	yes
Interface	RS-232	-	RS-232	-	-
Configuration	8 N 1	-	8 N 1	-	-
Resolution	112 mm				
Mechanical Data					
Adjustment	Teach-In	Teach-In	Teach-In	Teach-In	Teach-In
Housing	Plastic	Plastic	Plastic	Plastic	Plastic
Protection	IP68	IP68	IP68	IP68	IP68
Connection	M12 × 1	M12 × 1	M12 × 1	M12×1	M12×1
Protection Class	ш	III	Ш	ш	III

*Supply voltage residual ripple may not exceed 10 % (within the specified voltage range).

**Temperature Drift: 0,4 mm/k at ambient temperature < -10 °C and > 50 °C



Measuring Range:

The Sensors' measuring range is determined by object remission.

Maximum range of	Y1TA
	Up to 10 m on white (90 % remission)
	Up to 5 m on gray (18 % remission)
	Up to 3 m on black (6 % remission)

OY1TA603P0003

Up to 6 m on white (90 % remission) Up to 5 m on gray (18 % remission) Up to 3 m on black (6 % remission)

Light Spot Diameter

Working Distance	0	6 m	10 m
Light Spot Diameter Y1TA	5 mm	< 12 mm	< 20 mm

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

Y1TA100						
Soloctod compling	Colocted sampling Default setting for min		Resolution in mm			
rate in Hz	hysteresis in mm	0,13 m	35 m	510,1 m		
100	20	3	5	12		
50	15	2	3	10		
20	10	2	2	8		
10	8	1	2	7		
5	6	1	2	6		
2	4	1	1	6		
1	3	1	1	6		

OY1TA603P0003							
Soloctod compling	Default actting for min	Resolution in mm					
rate in Hz	hysteresis in mm	0,23 m	35 m	56 m			
100	20	3	5	12			
50	15	2	3	10			
20	10	2	2	8			
10	8	1	2	7			
5	6	1	2	6			
2	4	1	1	6			
1	3	1	1	6			

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4.1. Connecting the Sensors

Y1TA100MHV80



Y1TA100QXT3/OY1TA603P0003



Y1TA100MHT88



Y1TA100QXVT80



Switching laser light off via pin connection:

If the "La" pin is open or connected to negative, the laser is on.

If positive voltage is applied, the laser is off.

In the case of Y1TA100QXT3 and Y1TA100QXVT80, Pin "A1" can also be used as an analog output. The reference to ground here is Pin "-" (supply voltage "0 V").

Connecting Cables M12 × 1, 8-pin



Connecting Cables M12 × 1, 8-pin





Connecting Cables M12 × 1, 4-pin



Leaend

Supply Voltage +		U	Test Input
Supply Voltage 0 V		Ū	Test Input inverted
Supply Voltage (AC Voltage)		W	Trigger Input
Switching Output	(NO)	0	Analog Output
Switching Output	(NC)	0-	Ground for the Analog Output
Contamination/Error Output	(NO)	BZ	Block Discharge
Contamination/Error Output	(NC)	Awv	Valve Output
Input (analog or digital)		a	Valve Control Output +
Teach Input		b	Valve Control Output 0 V
Time Delay (activation)		SY	Synchronization
Shielding		E+	Receiver-Line
Interface Receive Path		S+	Emitter-Line
Interface Send Path		÷	Grounding
Ready		SnR	Switching Distance Reductio
Ground		Rx+/-	Ethernet Receive Path
Clock		Tx+/-	Ethernet Send Path
Output/Input programmable		Bus	Interfaces-Bus A(+)/B(-)
IO-Link		La	Emitted Light disengageable
	Supply Voltage + Supply Voltage (AC Voltage) Switching Output Switching Output Contamination/Error Output Input (analog or digital) Teach Input Time Delay (activation) Shielding Interface Receive Path Interface Receive Path Interface Send Path Ready Ground Clock Output/Input programmable ID -Link	Supply Voltage + Supply Voltage (AC Voltage) Switching Output (NO) Switching Output (NC) Contamination/Error Output (NC) Input (analog or digital) Teach Input Time Delay (activation) Shielding Interface Receive Path Interface Receive Path Interface Send Path Ready Ground Clock Output/Input programmable IO-Link	Supply Voltage + U Supply Voltage 0 V Ū Supply Voltage 0 V Ū Supply Voltage (AC Voltage) W Switching Output (NO) O Switching Output (NO) O Contamination/Error Output (NO) Awv Input (analog or digital) a Teach Input b Time Delay (activation) SY Shielding E+ Interface Receive Path S+ Interface Receive Path S+ Clock Tx+/- Output/Input programmable Be To-Link La

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Connecting Cables M12 × 1, 4-pin



	PoE	Power over Ethernet
out	Wire DIN I	Colors according to EC 757
	вк	Black
	BN	Brown
	RD	Red
	OG	Orange
	YE	Yellow
	GN	Green
	BU	Blue
on	VT	Violet
	GY	Grey
	WH	White
	PK	Pink
	ONIVE	o)/ "

GNYE Green Yellow

4.2. Housing Dimensions



- 1 = Laser Diode/Laser Aperture
- 2 = Receiver Diode
- 3 = Laser Warning Sign
- 4 = Name Plate incl. Laser Warning Sign

4.3. The Control Panel



A warning triangle in the display indicates that the Sensor receives a lot of light, e.g. through a glossy surface of the object. The measurement value could be around 400 mm too low in this case. To find a remedy, see the mounting instructions in case of glossy surfaces.

4.4. Complimentary Products

wenglor offers Connection Technology providing field wiring means.



5. Installation Instructions

All applicable electrical and mechanical regulations, standards and safety precautions must be adhered to when installing and operating the Sensor. The Sensor must be protected against mechanical influences. Install the device such that its installation position cannot be inadvertently changed. The wenglor mounting system is recommended for installing the Sensor. In order to obtain best possible results, the device's optics should be aligned at a right angle to the direction in which the objects are conveyed.



At brilliant surfaces, mount the Sensor in an angle of 5° to avoid a direct reflexion beam into the lens.

6. Initial Start-Up

6.1. Initial Start-Up

Connect the Sensor to supply power (18 to 30 V DC). The display view appears.

The Sensor is ready for operation after 2 seconds. The following table provides an overview of measured value deviations during the warm-up phase.

Time (min.)	0	1	2	5	10	15
Deviation (mm)	±10	±7	±6	±2	±1	0

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.

The keys are used for navigation, and for configuring settings.

Important:

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

- ▲ Navigation up.
- ▼ Navigation down.
- Acknowledge the selected menu item (arrow points towards the display).
- Accept the selected setting, exit the menu (arrow points away from the display).

6.2. Default Settings

		OY1TA603P0003	Y1TA
		A1: Switching output	A1: Switching output
Pin Function			A2*: Switching output
		A3: Error output	A3: Error output
	Teach Mode	Object	Object
	Switching threshold	1000 mm	1000 mm
	Hysteresis	20 mm	20 mm
	Window Size	50 mm	50 mm
Outputs	PNP/NPN	PNP	PNP
	NO/NC	NO	NO
	ON Delay	0 ms	0 ms
	OFF Delay	0 ms	0 ms
	Impulse	0 ms	0 ms
Error output	PNP/NPN	PNP	PNP
	NO/NC	NO	NO
A3 Input	invers		
	U/I	U	U
Analog	0 V	200 mm	100 mm
	10 V	6200 mm	10100 mm
Offset	Specification Offset	0 mm	0 mm
Measure Rate		100 Hz	100 Hz
Laser		An	An
Run Mode	Display Mode	Distance	Distance
	Mode	Comm	Comm
	Baud Rate	38400	38400
Interface	ASCII	binary	binary
	Interval	100 ms	100 ms
	Mask	1	1
Display	Intensity	Screensaver	Screensaver
Language		German	German
Password	Enable	Off	Off
1 asswulu	Enter	0	0

*Does apply to Y1TA100MHV80 and Y1TA100QXVT80

7. Functional Overview



7.1. RUN

The Sensor can be switched to the display mode by pressing the \blacktriangleleft key.

7.2. Pin Function

The Pin Function serves to determine the function of the pins A1 or A3. The pins can each take on different functions.

Designation	Function	Ke	Key designation				
A1	Konfiguration of Pin A1			▼			
On O Analog	(does apply to Y1TA100QXVT80, Y1TA100QXT3 or OY1TA603P0003) By pressing the buttons ▲ and ▼ Pin A1 can be configured as a switching output or analog output.						
A3	Configuration of Pin A3			▼			
© Q O On O Error ⊕ Laser	By pressing the button ▲ and ▼ Pin A3 can be of O a switching output O an input for O an input for O a Teach-Inp O an input for switching on/off the transmitted light O a Teach-Inp	and ▼ Pin A3 can be configured as: ○ an input for application of the offset ○ a Teach-Input for A1 ○ a Teach-Input for A2 (if A2 available)					

The adjusted function of the pins is displayed figuratively in the menu "Run Mode":

	Teach-Input A3 for A1 or A2
(A1) (A2) (A3)	Switch output
AN	Analog output
	Input
(F)	Error output

7.3. A1/A2/A3 Switch

Basic settings for the individual switching outputs are selected in the A1/A2/A3 Switch menu.

Designation	Function Key designati			y designation
T Object	Object Teach-In		Т	
T Object 1000mm 699 mm	 Distance to the object is taught in by Align the spot to the object. Briefly press the T key. → Switching distance to the 	pressing the Sensor	T key:	
	 object is set. If necessary, readjust the switching distance with the help of the Potentiometer menu item. 	♦ Object	<pre> * Hysteres </pre>	 Making point sis Breaking point
	* Y1TA: (Hysterese) + 10 mm			 Background e. g. conveyor belt

Designation	Function	Ke	y designat	ion
T Backgrnd.	Background-Teach-In	Т		
Ti Backgrind T Backgrind 1000mm 699 mm	Distance to the background is taught in by pressing the T key, so that the background can be suppressed: • Align the spot to the back- ground (e.g. conveyor belt). • Briefly press the T key. → The background is suppressed. * Y1TA: (Hysterese) + 10 mm	sor H	Mak ysteresis Brea Bac e. g.	ing point Iking point Kground conveyor belt
T Window	Teach-In a tolerance window	Т		
ILVMIndowy TvMndowy 1000mm 699 mm	 A window tolerance is taught in by pressing the T Align the spot to the object. Briefly press the T key. → A tolerance window is set up around the measured distance. The window width value is adjustable (see below). The default value is 50 mm. If the measuring distance lies within the window width, the sensor is activated. When the window is taught in, the lower (L) and upper (H) switching points are displayed alternately in line 3. 	key: or ct	Hysteresis Ma Hysteresis Ma Vindow Widt Hysteresis Br	eaking point aking point h aking point eaking point
Poti	Readjusting the switching distance	+		-
2011 Poti 1000mm 699 mm	The switching distance can be readjusted by pres	sing the +	or the – key	<i>I</i> .
Hysteresis	Adjusting switching hysteresis	+		-
Avitantia Hysterese Omm	The hysteresis value is adjusted by pressing the - Minimum value: depends upon the sampling rate	⊦ or the – k (see table	ey. page 35)	
Window Size	Setting the desired window width	+		_
WindowSize	(Can only be adjusted after Teach Window). The width (10 mm1000 mm) of the tolerance v the + or the – key. The default value is 50 mm.	window is s	elected by I	pressing



Designation	Function	Key	Key designation		
NPN/PNP	Configuring the outputs	Р		N	
	Outputs are set to PNP, push-pull or NPN by pres The respective circuit diagram is displayed.	sing the P c	or the N key	y.	
NO/NC	Configuring the outputs	NO		NC	
	Outputs can be set up as normally open or norma or the NC key. The respective circuit diagram is d	ally closed b isplayed.	y pressing	the NO	
ON Delay	Adjusting ON Delay	+		-	
Delay ON Oms	ON Delay can be set to a value within a range of 0 to 10.000 ms by pressing the + or the – key.	Object Output		► ON Delay	
OFF Delay	Adjusting OFF Delay	+		-	
Delay OFF Oms	OFF Delay is adjusted by pressing the + or the – key. OFF Delay is disabled if a impulse duration has already been selected. If this is the case, Impulse! appears at the control panel.	ot	OFF Del	ay	
Impulse	Adjusting impulse duration	+	►	-	
Ontron al Inpuls Ons	Impulse duration defines how long the output signal remains in the activated state. Impulse duration can be set to a value within a range of 0 to 10.000 ms by pressing the + or the – key. After the selected impulse duration has elapsed, the output signal is returned to the deactivated state	t Impulse du ise On De Impul Impul	elay se duration on can be com	 bined with	



Designation	Function	Ke	y designat	ion
Extern T	External Teach-In	▼	•	
L A1 Switch	By pressing the button ▼ can be selected, if an "C Teach-In", or "Teach-In of a tolerance window" is e	Dbject Teac executed at	h-In", a "Ba the Externa	ckground al Teach-In.

7.4. A3 Error F/A3 Input 7.4.1. A3 Error

The error output is activated if no light signal is returned to the Sensor.

Designation	Function	Key designation		
NPN/PNP	Output configuration	Р		N
	· · -			

The error output is set to PNP, push-pull or NPN by pressing the \mathbf{P} or the \mathbf{N} key. The respective circuit diagram is displayed.

NPN/PNP	Output configuration	NO	NC

The error output is set up as normally open or normally closed by pressing the **NO** or the **NC** key. The respective circuit diagram is displayed.

7.4.2 A3 Input

If Pin "A3" is used as input "Emitted light disengageable" or as input "Offset", the input can be set as an inverted or non-inverted input.

Designation	Function	Key designation		ion
not invers	Usage as non-inverted input	▼		
A3 Input O inversion	Normally, the input is at supply voltage "0". The functionality of the input is triggered upon app	blying a vol	tage > 7 V.	
invers	Usage as inverted input	▼		►
A3 Input O not invers	The input is normally at a voltage of $>$ 7 V. The functionality of the input is triggered upon a	oplying a vo	oltage < 7 \	Ι.



7.5. A1 Analog/Analog

The measuring range for the analog output can be feely selected within the specified working range with rising of falling characteristic curve.

The adjusted measuring range must have a value of at least 2 % of the total measuring range.



Designation	Function	Key designation		
Mode U/I	Analog output as current or voltage output	U	•	

The analog output can be set up as either a current or a voltage output by pressing the ${\bf U}$ or the I key. The corresponding symbol is displayed.

Teach	Teach in the distances which correspond to the upper and lower voltage values	10 V		0 V
		respectively	►	respectively
		20 mA		4 mA

The momentary actual distance is assigned to a voltage value of **10 V** or a current value of **20 mA** by pressing the 10 V or the 20 mA key.

The momentary actual distance is assigned to a voltage value of **0 V** or a current value of **4 mA** by pressing the 0 V or the 4 mA key.

If necessary, the assigned distances can be readjusted with the help of menu items At 0 V or at 10 V.

at 0 V	Distance at 0 V	+	•	_

The distance assigned to either 0 V or 4 mA is adjusted by pressing the + or the - key.

at 10 V	Distance at 10 V	+	•	—

The distance assigned to either 10 V or 20 mA is adjusted by pressing the + or the - key.



7.6. Offset

The function Offset serves to change the current measurement value to a certain other value. Here, the switching thresholds and the analog measurement ranges are changed as well.

The offset can take place optionally via a menu or externally via Pin A3.

<u>Via menu</u>

Designation	Function	Key designation									
Apply*	Accepting the value set in "Specification" as the distance.	Т	•	Z							
Apply Omm Z	Upon pressing the button T , the offset value set in Specification is accepted as the distance. Upon p function is reset and the real distance is displayed	ing the button T , the offset value set in the menu option on is accepted as the distance. Upon pressing the button Z , the offset eset and the real distance is displayed.									
Preset*	Teaching the offset value T ◀										
Preset T Offset Omm S99 mm Z	Upon pressing the button T , the current distance is accepted as the specificatio offset. Upon pressing the button Z , the offset specification value is set to 0 (the offset is activated in the menu option Apply)										
Change	Changing the offset value that has been set in steps		•	•							
Preset Omm	By pressing the keys + or - the adjusted specificati be changed stepwise upwards or downwards.	on offset (n	nenu point I	^{>} reset) can							

*The currently set specification offset is displayed in line 3. The current distance is displayed in line 4.

Via Pin "A3"

Via the multifunctional pin A3, the offset equalization can be applied through an external trigger Sensor (corresponds to the menu **Offset** \rightarrow **Apply** \rightarrow **T**. Here, **A3** must be configured by means of the setting Offset as input (see chapter 6.2 – Pin Function).

In order to apply the Offset equalization, a voltage > 7 V should be applied at the input pin to trigger a positive flank. Here, the value set in the menu option **Preset** is accepted as the current distance.

Without Offset equalization:

In the diagram, the Sensor measures a distance of 5000 mm. The switching point is located 2000 mm distant, at 7000 mm.



With application of the offset equalization: Specification offset: 0 mm

In the diagram, the Sensor measures a distance of 5000 mm. The switching point is located 2000 mm distant, at 7000 mm. After application of the offset equalization, from the distance 5000 mm the distance becomes 0 mm. The switching distance thus gets displaced by 7000 mm to the actual 12000 mm.



Application of the offset equalization: Specification offset: 3000 mm

In the diagram, the Sensor measures a distance of 5000 mm. The switching point is located 2000 mm distant, at 7000 mm. After application of the offset equalization, from the distance 5000 mm the distance becomes 3000 mm. The switching distance thus gets displaced by 4000 mm to the actual 9000 mm.



Example of application:

A Y1TA100MHV80 is used in a high rack warehouse with varying ambient temperatures. To eliminate the temperature drift, a reference path of 1000 mm is specified to the Sensor as the specification offset. Through an external trigger Sensor, the specification offset is applied and given to the Sensor as the current distance. This ensures that the distance tallies with the value of the reference route with every trigger signal and thus, the varying ambient temperature has no influence on the measurement values of the Sensor.



7.7. Sampling Rate

Reducing the sampling rate improves resolution and reduces minimum selectable switching hysteresis. The respective minimum and maximum values are in the table on page 37.

Designation	Function	Ke	y designa	tion
100 Hz				
50 Hz				
20 Hz				
10 Hz	Sampling rate value	▼	◀	
5 Hz				
2 Hz				
1 Hz				

The sampling rate which is best suited for the respective application can be selected from the predefined values by pressing the \checkmark or the \triangleleft key.

7.8. Laser

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

Designation	Function	Ke	tion	
ON	Switch transmitted light on	-		
OFF	Switch transmitted light off	•		
Transmitted light is				

For the products Y1TA100MHT88 and Y1TA100QXVT80 the laser light can be switched off via pin 5, by connecting pin 5 to 24 V. If Pin 5 has already been set as an RS-232 interface, the laser diode can be switched off with an interface command, in the menu or via the A3 input (see chapter "7.2. Pin Function"/"7.4.2 A3 Input"). In case of the Y1TA100MHV80 the laser diode can be switched off via pin 8, by connecting pin 8 to 24 V.



7.9. Read-Out

Which data will be read out to the display as measurement results are selected in the Read-Out menu.

Designation	Function	Key designation				
DispMode	Select display characteristics	▼				

What will appear at the monitor during display mode operation is selected by pressing the ▼ or the ◄ key:

Distance: The states of the individual outputs appear at the display.



Analog: The analog output value appears at the display.



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7.10. Interface (does apply to Y1TA100QXVT80 and Y1TA100MHT88)

The basic settings for the interface are entered to the Interface menu.

Designation	Function	Key designation									
Mode	Basic interface settings	▼	•								
One of the function types, namely Menu, Comm (default setting) or Continuous , is selected by pressing the ▼ and the ◄ key. <u>Menu</u> : The sensor can be addressed with the help of a terminal program. A menu is generated automatically in the terminal program (see chapter 8.1). <u>Comm</u> : The sensor can be addressed by means of interface commands (see chapter 8.2). <u>Continuous</u> : The sensor reads out selected information at a defined interval.											
Baud rate	Set the baud rate	▼	•								
The interface can be 9.600, 38.400 (defaul	The interface can be set to one of three baud rates by pressing the ▼ and the ◄ key: 9.600, 38.400 (default setting) or 115.200 Baud.										
Continuous transmission: If continuous transmission is used, the values selected from the table shown below are transmitted via the interface at a defined interval.											
ASCII Selection	of the output format for continuous transmission			▼							
Selection is made be by pressing the ▼ or	tween the two output formats, ASCII or binary (default set the ◀ key.	ting),									
TA/T Selection	of the interface protocol			▼							
Switching between the pressing the ▼ or the	he old and new interface protocols (Y1TA and YT respective \triangleleft key.	vely) is pos	sible by								
Interval Selection	of the transmission interval for continuous transmission	+		—							
The length of the interval specifies how frequently data will be transmitted via the interface. The interval can be set within a range of 10 to 10.000 ms by pressing the + or the – key.											
Mask Selection	of the desired output values for continuous transmission	+		-							

The selected mask specifies which information will be read out to the interface during continuous transmission. Selection can be made from masks 1 through 31 by pressing the + or - key.

The individual output values are explained in the following pages.

The individual values are read out consecutively to a single line. Only the values for the selected columns are read out.

	me in is e 4 of ienu	115200		0,94	0,41	1,35	2,82	3,76	3,23	4,17	0,94	1,88	1,35	2,29	3,76	4,7	4,17	5,11	0,85	1,79	1,26	2,2	3,67	4,61	4,08	5,02	1,79	2,73	2,2	3,14	4,61	5,55	5,02	200
7	mission ti (packet) yed in lin 'Mask" m function.	38400		2,82	1,23	4,05	8,46	11,28	9,69	12,51	2,82	5,64	4,05	6,87	11,28	14,1	12,51	15,33	2,55	5,37	3,78	6,6	11,01	13,83	12,24	15,06	5,37	8,19	6,6	9,42	13,83	16,65	15,06	17 00
	Transı ms displa the "	9600		11,28	4,92	16,2	33,84	45,12	38,76	50,04	11,28	22,56	16,2	27,48	45,12	56,4	50,04	61,32	10,2	21,48	15,12	26,4	44,04	55,32	48,96	60,24	21,48	32,76	26,4	37,68	55,32	66,6	60,24	71 50
9	Time stamp in ms		########																×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	>
5	Digital read-out of the current or the voltage value (depending on the setting in the "Analog" menu)		Nm#######								×	×	×	×	×	×	×	×									×	×	×	×	×	×	×	>
4	Difference between current distance and the selected switching point (for each output)		uuu#######+uuu######+uuu######+				X	X	×	X					Х	Х	Х	X					×	Х	Х	Х					X	X	X	>
n	Statuses of the digital outputs		####		Х	×			×	×			x	х			х	x			×	×			Х	х			×	×			×	>
2	Current distance		uuu######+	×		×		×		×		×		×		×		×		×		×		×		×		×		×		×		>
-	Mask		String	-	2	ო	4	5	9	7	ω	ი	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	ć





Explanation of the individual output values:

Column 2: current distance: read-out of the respective current measuring distance in mm

Column 3: statuses of the digital outputs:

0: not	switched		
1: swi	tched		
#	#	#	#
F	A3	A2	A1

Example: 1001 \rightarrow error output and output 1 switched.

Column 4: difference between current distance and the selected switching point (for each output) <u>Example:</u>



Column 5: digital read-out of the current or the voltage value in mV (depending on the setting in the "Analog" menu)

Column 6: time stamp

Example:

Time Stamp	Measuring Distance
00001024	1805 mm
00001066	1810 mm
99999999	2068 mm
0000000	2068 mm

By outputting the time-stamp, the individual measurement distances can be assigned to a relative time without taking into consideration the processing speed of the computer. Time stamp: $\Delta 1 \triangleq 500 \,\mu s$



7.11. Display

The display can be rotated and brightness can be adjusted with the help of the **Display** menu.

Designation	Function	Key designation				
Rotated	The display is rotated 180°.	▼	-	•		

The display is rotated 180° by pressing the < key. The display can be returned to its original position by pressing the same key once again.

Intensity	Adjusting display intensity	▼	•	
A film in the second second line at the second	K an a land ale and an and an and an and the set of th	and the trained	L. Casta .	

After pressing the \checkmark or \blacktriangleleft key, the menu appears immediately with the selected intensity (min., normal or max). By selecting the energy saving mode the display switches off after one minute without activating a key. It switches on automatically, when activating a key again.

Note: If none of the keys are activated for a given period of time, the display is switched to the energy saving mode and the intensity is reduced. The display is returned to the selected intensity as soon as any key is activated.

7.12. Language

The desired menu language can be selected in the Language menu.

Designation	Function	Key designation						
Deutsch	Default language	▼	•					
English	Menu language	▼	•					
Francais	Menu language	▼	•					

The desired language is selected by pressing the ▼ or ◄ key. The desired language appears in the menus as soon as it has been selected.

7.13. Info

The following information regarding the Sensor is displayed in the Info menu:

- · Sensor type
- Software version
- · Serial number

7.14. Reset

Sensor settings can be returned to their default values with the help of the **Reset** menu. Default settings are listed in section "Default settings".

Designation	Function	Key	ion	
Reset	Press <r> to reset</r>	R	•	

All of the selected sensor settings are returned to their default values by pressing the **R** key.



7.15. Password

Password settings can be entered in the password menu with the following four submenus.

Designation	Function	Key designation		
Enable	Switch Password Function On or Off	▼	•	
Password Frakte Enter Change	The Enable menu is accessed by pressing the ◀ deactivate the password function by selecting Off power supply, the operation of the sensor is locke operation can be done in the sub-menu "Lock".	key, where or On . Afte d. Immedia	you can ac r interruptic te blockage	tivate or in of the e of the
Enter	Password Entry for Enabling the Sensor	▼		
Password C Enable Finter C Change	The Enter submenu is accessed by pressing the password in order to enable the sensor. The desired password is entered by means of the + or - key in order to scroll quickly through the	✓ key, wh e + or - ke numbers, F	ere you car ey. Press an	n enter the id hold the
Password Enter 0	by pressing the ► key. The password is set to 0 upon shipment from the	factory.		lemeagea
Change	Change the Password	▼	•	
Password Enable Enter Change	The Change submenu is accessed by pressing t the password. The desired password is selected with the + or − k ▶ key. Press and hold the + or – key in order to se	he ◀ key, v key, and is a croll quickly	where you o acknowledg r through th	an change Jed with the e numbers.
Change 24				
Lock	Lock after Sensor	▼		
Password Enter Change Lock	The sensor can be disabled with the help of the supply power. The sensor is disabled and switched automatically pressing the < key.	his functior	n, without in word entry	nterrupting mode after
Password Enter 0	A password must be entered in order to continue	using the s	ensor.	



Notes regarding password functions:

If the password function has been activated, the password must be entered each time supply power to the Sensor is interrupted.

After pressing a key, the menu is automatically switched to the password entry mode.

The following user interface then appears:



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 **support@wenglor.com**.

8. More Settings and Queries via the RS-232 Interface

(does apply to Y1TA100QXVT80 and Y1TA100MHT88)

The interface makes use of the software handshake procedure. All settings can be configured at a PC and uploaded to the device. RS-232 interface connections RxD (5) and TxD (4) are linked to minus (pin 3, green), and can be connected to the corresponding terminals at the communication partner.

Interface configuration:

Adjustable baud rate, 8 data bits, no parity, 1 stop bit

Plug connectors included with the wenglor S232W3 plug adapter:

- 8-pin M12 plug connector for connecting the power supply and the outputs
- 8-pin M12 socket connector for direct Sensor connection
- 9-pin M12 subminiature socket connector for direct connection to the RS-232 interface at the PC, or the utilized controller



Connect the Sensor to the PC, the controller etc. via the wenglor S232W3 plug adapter. Install the plug adapter as follows:

- Disconnect the 8-conductor connector cable (S80-xx) from the Sensor.
- Connect the S232W3 plug adapter directly to the Sensor.
- Connect the 8-conductor connector cable (S80-xx) to the plug adapter.
- · Connect the 9-pin subminiature socket connector at the PC to the serial interface.
- Switch the power supply on.



8.1. Remote Control via a Terminal Program

1. Connect the Sensor as described in chapter 8 above.

- 2. Set the Sensor to the Interface menu mode.
- Select the "Interface" menu item.
- · Select "Mode".
- · Select "Menu".

Alternatively: Select <Comm> and with F1, select remote control via Terminal-Program. The remote control via Terminal-Program can be ended with F4.

3. Start the terminal program at the PC,

for example start the Windows® HyperTerminal® by clicking

 \rightarrow Start \rightarrow Programs \rightarrow Accessories \rightarrow Communication \rightarrow HyperTerminal.

- Settings: 38.400 baud, 8, N, 1
- Select the utilized port (e.g. COM 1).
- Establish a connection.

The menu appears in the terminal program.

scnul	lor sensoric	anbh Y1TR100H	1188			
Kain-Henve	Sub-Henue	Content	actual Dat	0		
Run Pin Fursc RI Switch RJ Input Realoy Offsat MeasureRate Lover	Beutsch English Frankdis		Output 1. -0588aa 81020aa NO/N MP9/ NO P9/P Output 2 -0580aa	-8699as 81888as 0H D 8es -8695as	U DFF Dwi	Impu Uma
Run Mode Interface Display			81820au NO/N NPN/ NO PNP	91990ww DN D Rws	OFF Bwg	Iери Пес
lefe (F1): DOM (F2): Di (F3): Back	a	O EXIT HENKE	Output 3 -9559aa	-8699aa	ß	

You can now navigate within the menu using the F1, F2 and F3 keys on your keyboard.

8.2. Remote Control with Interface Commands

- 1. Connect the Sensor as described in chapter 8 above.
- 2. Set the Sensor to the interface operating mode.
- Select <Interface> from the menu.
- Select <Mode>.
- Select <Comm>.

The Sensor is now ready for interface communication.

The interface protocol for the Y1TA can be downloaded as a PDF document from our website at **www.wenglor.com** under the "download" heading.



9. 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.

10. 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.