MANUAL

WLL180T

Sensor Configuration for Individual Applications

SICK
Sensor Intelligence.

Universal or individual – application solutions.

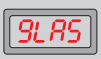
Fast and reliable programming, menu driven and at the push of a button: sensor properties and parameters are individually programmed directly on the sensor.
Teach-in or manual adjustment? You decide!

1-point Teach-in
Teach-in – quick and easy for standard applications.

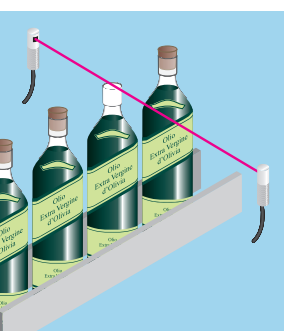
2-point Teach-in
Exact switching threshold adjustment at the object and of the environment. Ideal for applications with small system reserves.

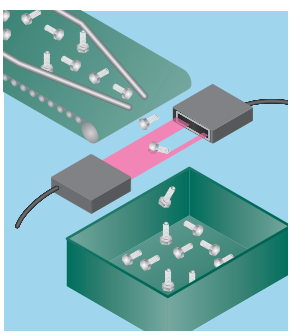
Auto Teach-in
Fully automatic switching threshold adjustment of moving objects. Even falling or tiny objects are reliably detected.

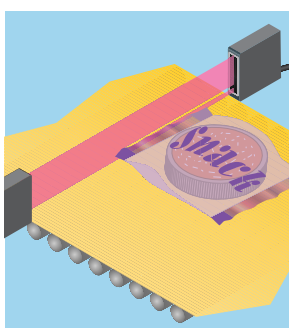
Zone Teach-in
This so-called window technology learns the object within a definable bandwidth of the switching threshold. Ideal for the detection of marks, or simultaneous foreground and background suppression.

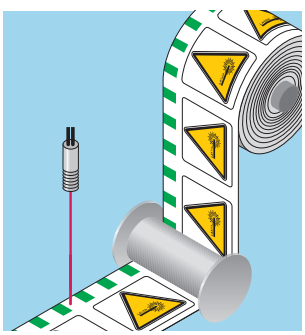


Teach-in of transparent objects
Teach-in with minimum sensitivity, reliably detecting glass, films or small objects.



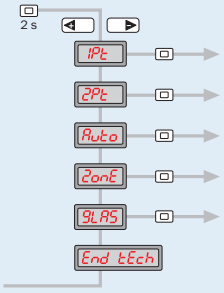




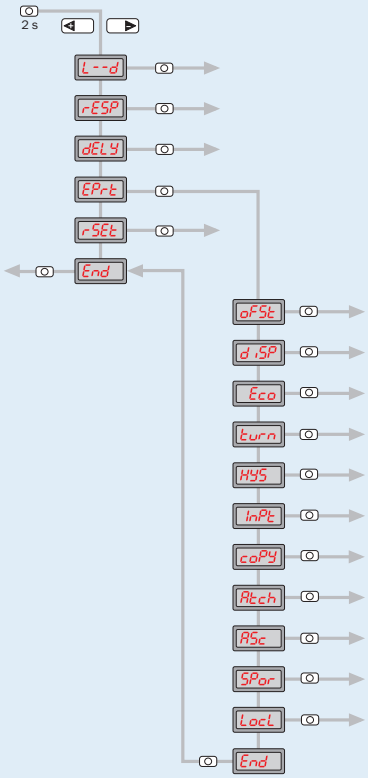


Selection of the menu levels

Teach-in



Application specific configuration



Photoelectric sensor for fiber-optic cables WLL180T – Easy handling, structured functions and optimum functionality.

The photoelectric sensor for fiber-optic cables WLL180T with the SICK fiber-optic cables of the LL3 series is especially suited to detecting very small objects, objects in front of reflective backgrounds, and transparent and moving objects. Fiber-optic cables are ideal for use in installations where space is restricted.

Status LED for switching output

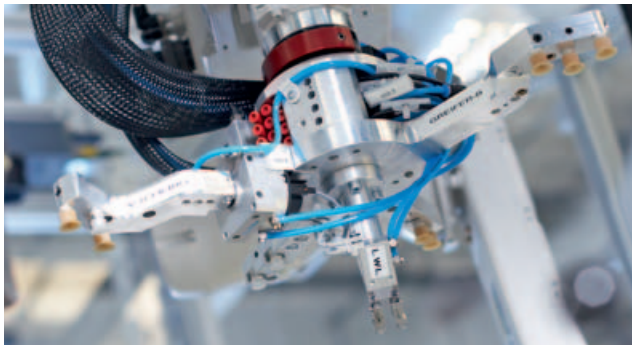
Arrow keys

Locking, fiber-optic cable

Numeric display for nominal value (green) and actual value (red)

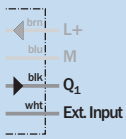
Mode/ Enter key

Teach-in key



From monitoring to power control.

Monitoring simplifies many things, and technical highlights provide many options, always enabling easy commissioning and permanently reliable operation.



Switching output and external input
The external input can be configured as teach-in or test input.

2X4-DIGIT NUMERIC DISPLAY

Dual 7-segment display for simultaneously showing nominal/actual values and for interactive operator guidance.

ASC – AUTOMATIC SENSITIVITY CONTROL

For instance, automatically adapting the switching threshold to compensate for contamination when detecting transparent objects.

SHORTEST RESPONSE TIME

Detection of fast processes is an easy task for the worlds fastest photoelectric fiber-optic sensor. With a response time of only 16 µs objects can be detected precisely. A small jitter contributes to the accuracy of the detection.

HIGH RESOLUTION SIGNAL PROCESSING

Smallest changes in the level of the received light are already sufficient for a reliable detection.

ADJUSTING THE LIGHT INTENSITY OF THE SENDER LED

The power of the sender LED can be adjusted in three stages: saturation, e. g. in case of highly reflective objects, is prevented.

For standard applications: Teach-in and the commissioning is complete.

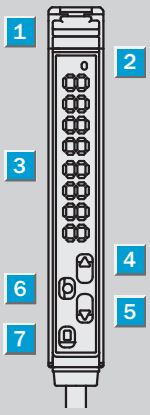
The manual or automatic adjustment with Teach-in is always the first step. The 5 different Teach-in modes can be quickly and easily selected. Alternatively, the switching threshold can be adjusted manually utilizing the display.

Teach-in	Adjustment options	
1PT 1-point Teach-in → to quickly learn the switching point	Good	1.1 Page 6
2PT 2-point Teach-in → to safely learn the switching point	1PT, 2PT, Good	1.2 Page 7
Auto Auto Teach-in → for Teach-in without stopping the production process	Strt, StoP, Good	1.3 Page 8
ZonE Zone Teach-in → for learning an upper and lower switching threshold	Good	1.4 Page 9
GLAS Transparent Teach-in → transparent objects such as bottles and films	Good	1.5 Page 10

Manual adjustment of the switching threshold

◀ ▶ Manual, step-by-step modification of the switching thresholds by operating the arrow keys. After a few seconds, the display automatically jumps to the operating mode.

Function keys of the sensor unit



1 Locking fiber-optic cable
2 Display LED orange: lights when the switching output is active
3 Display, numeric: 4-digit green: switching threshold, operating mode, red: current reception value, Teach-in/ function parameter
4 Arrow key < (manual switching threshold: higher resp. next function parameter)
5 Arrow key > (manual switching threshold: lower or previous parameter)
6 Mode/Enter key (programming key)
7 “Teach-in” key

Further functions

Quick jump back from configuration mode to operating mode. By pressing the ▭-key for at least 2 seconds, the display jumps from any position in the configuration menu back to the main display.

Keylocks
Simultaneously pressing the ◀ ▶ arrow keys for at least 2 seconds in the RUN mode, locks or unlocks the keys (display Loc/unloc).

Application specific configuration: Utilising the entire functionality.

If further adjustments need to be made beyond the normal threshold adjustment, the entire functionality can be selected via a comfortable menu.

Configuration	Level I	Level II	Adjustment options	
L--d Switching mode			L on, d on	2.1 Page 11
rESP Response time			Stnd, FASt, Lon9, H i9h, SuPr	2.2 Page 12
dELY Time delay setting			oFF, oFdY, ondY, SHot, onoF, onSh	2.3 Page 13
EPrt Expert menu/ detailed settings	oFSt Set display value to zero		oFF, on	3.1 Page 16
	d iSP Display settings		d i9, bAr, Pct	3.2 Page 17
	Eco Energy-saving mode		oFF, on	3.3 Page 18
	turn Reverse display		oFF, on	3.4 Page 19
	HYS Hysteresis setting		P 1	3.5 Page 20
	inPt External input configuration		rtch, tESt, SYnc	3.6 Page 21
Bus versions	coPY Copy mode		no, YES	3.7 Page 22
Bus versions	Atch Master Teach-in		no, YES	3.8 Page 23
	ASc ASC setting		oFF, on	3.9 Page 24
	SPor Power setting of the sender LED		1111, 111, 11	3.10 Page 25
	Locl Keylock		no, YES	3.11 Page 26
rSEt Reset			no, YES	2.5 Page 15

1.1 1-point Teach-in 

1. Press Teach-in key for 2 s 
2. Operating mode Teach-in active 

3. In the basic menu, select required mode by pressing the arrow keys 
4. 1-point Teach-in is shown on the display 

5. Adjust diffuse type fiber to the background without object and press Teach-in key 
6. Teach-in successful, set switching threshold blinks 3x and the display returns to the main display 

In case of faulty input during Teach-in, the following messages are shown:

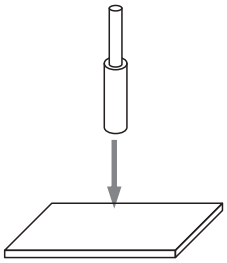
Sensing level is too low 

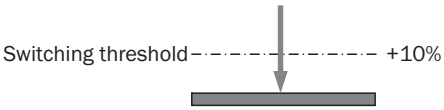
Sensing level is saturated 

Difference of sensing level between two points is too small 

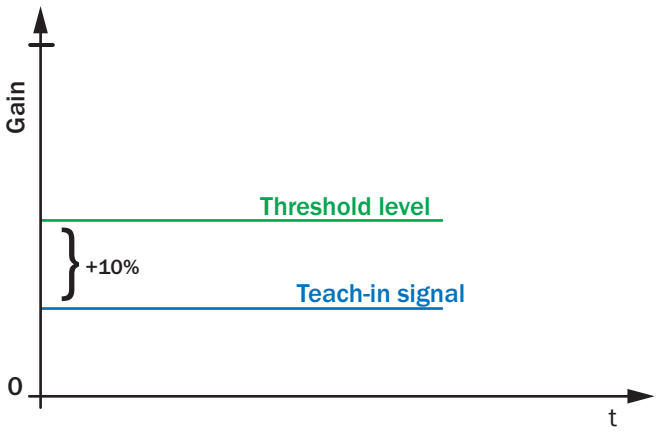
Easy setting of the switching threshold.
Secondary condition:
Diffuse type = object absent
Through-beam = object present

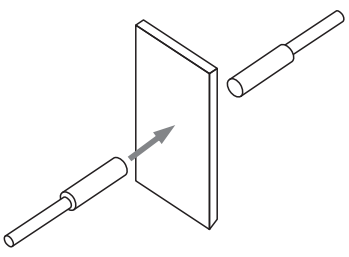
Adjust diffuse type to the background without object





Adjusts the switching threshold with + 10% according to the light received.

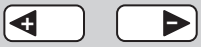




Typical applications:
Standard applications,
no spurious effects expected,
max. system reserve.

1.2 2-point Teach-in 

1. Press Teach-in key for 2 s 
2. Operating mode Teach-in active 

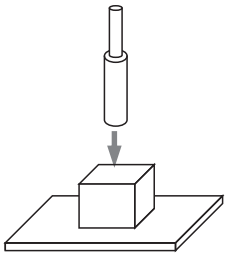
3. In the basic menu, select required mode by pressing the arrow keys 
4. 2-point Teach-in is shown on the display 

5. 1st point: adjust diffuse type fiber with object present 

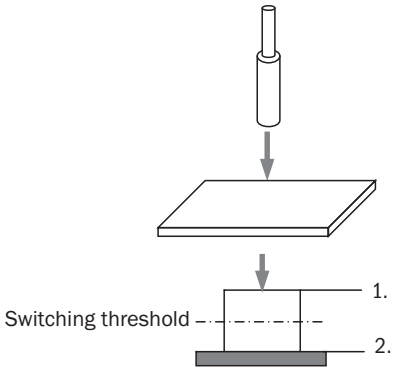
6. Press Teach-in key 
7. 2nd point: adjust diffuse type fiber to the background without object 

8. Press Teach-in key 
9. Teach-in successful, set switching threshold blinks 3x and the display returns to the main display 

Exact adjustment of the switching threshold to object and ambient conditions, in any order.
1st step: Teach-in with object



2nd step: Teach-in without object



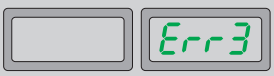
The switching threshold is defined between the 1st and 2nd point.

Typical applications:
Exact switching point,
switching threshold is adapted to the object and ambient conditions, create low system reserves.

In case of faulty input during Teach-in, the following messages are shown:

Sensing level is too low 

Sensing level is saturated 

Difference of sensing level between two points is too small 

1.3 Auto Teach-in 

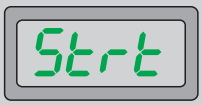
1. Press Teach-in key for 2 s 

2. Operating mode Teach-in active 

3. In the basic menu, select required mode by pressing the arrow keys 

4. Auto Teach-in is shown on the display 

5. To start: press Teach-in key 

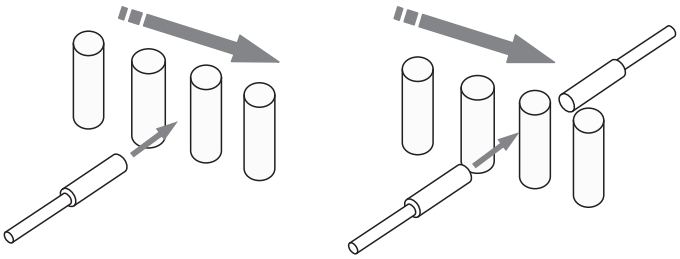
6. Start 

7. To stop: press Teach-in key 

8. Stop 

9. Teach-in successful, set switching threshold blinks 3x and the display returns to the main display 

Automatic adjustment without stopping the production process.
1st step: start Teach procedure



Allow one object or, even better, for several objects to pass.

2nd step: stop Teach-in procedure

Typical applications:
When objects can only be learned during the ongoing process, e.g. ejection control.

In case of faulty input during Teach-in, the following messages are shown:

Sensing level is too low 

Sensing level is saturated 

Difference of sensing level between two points is too small 

1.4 Zone Teach-in 

1. Press Teach-in key for 2 s 

2. Operating mode Teach-in active 

3. In the basic menu, select required mode by pressing the arrow keys 

4. Zone Teach-in is shown on the display 

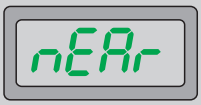
5. Press Teach-in key 

6. Teach-in successful, set switching threshold blinks 3x and the display returns to the main display 

Optionally, the switching thresholds for close and far ranges can be readjusted, via the arrow keys.

9. Press arrow key in main display 

10. Range (FAr) or (nEAr) can be selected with arrow keys 

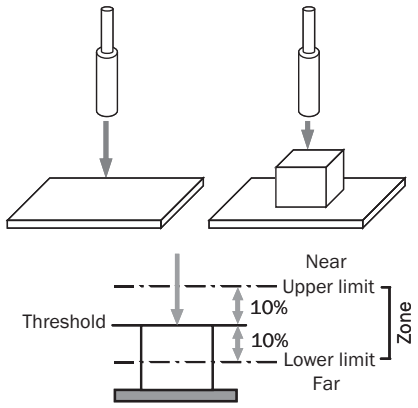


11. Select far (FAr) or near (nEAr) range by pressing the mode key 

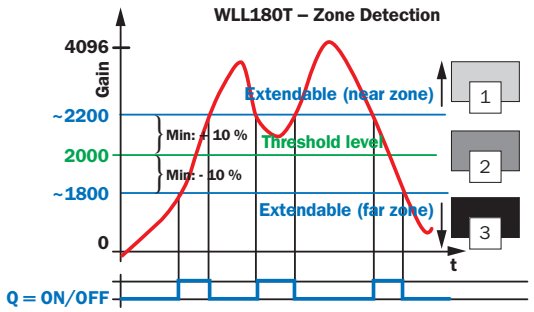
12. The value of the received light (red display) then appears, and the threshold value (green display) flashes for about 5 seconds. During this time, the threshold value for the selected range can be set via the arrow keys.

The switching point of the object is learned, and detected, within a window. This window can be manually extended for the lower (far) and higher (near) switching threshold, respectively.

Adjust diffuse type fiber to the background without and with object.



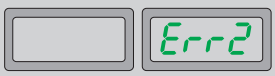
Adjusts the zone with ± 10 % according to the light received.



Typical applications:
Ideal for mark detection, e. g. detecting no. 2 (see diagram above) with variable window. Or “foreground suppression” and “background suppression” simultaneously.

In case of faulty input during Teach-in, the following messages are shown:

Sensing level is too low 

Sensing level is saturated 

Difference of sensing level between two points is too small 

1.5 Teach-in of transparent objects 

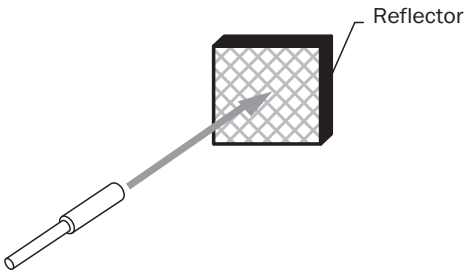
1. Press Teach-in key for 2 s 
2. Operating mode Teach-in active 

3. In the basic menu, select required mode by pressing the arrow keys 
4. Teach-in of transparent objects is shown on the display 

5. Press Teach-in key 
6. Teach-in successful, set switching threshold blinks 3x and the display returns to the main display 

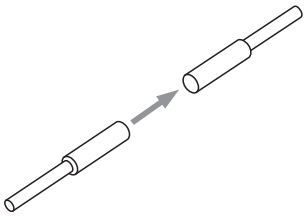
Mode is optimised for the detection of transparent objects.

Diffuse type:
Teach-in without object. Use reflector.



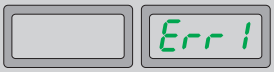
Adjusts the switching threshold to 90 % of the light received.

Through-beam system:
Perform Teach-in without object.



Adjusts the switching threshold to 90 % of the light received.

In case of faulty input during Teach-in, the following messages are shown:

Sensing level is too low 

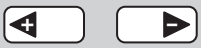
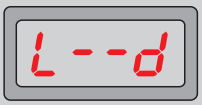
Sensing level is saturated 

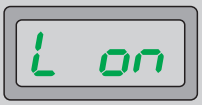
Difference of sensing level between two points is too small 

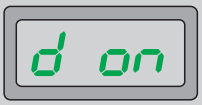
Typical applications:
Detection of objects with low attenuation, such as glass, clear film or very small objects.

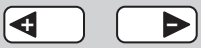
2.1 Switching mode 

1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. In the basic menu, select required mode by pressing the arrow keys 
4. Switching mode is shown on the display 

5. Press Mode key, setting option flashes 
6. Select between light-switching (L on) and dark-switching (d on) by pressing the arrow keys 




7. Finish selection with Mode key 
8. Select ending the adjustment (End) 


9. Finish selection with Mode key 

Switching mode (L--d),
L on: light-switching (factory setting),
d on: dark-switching.

2.2 Response time 

1. Press Mode key for 2 s 

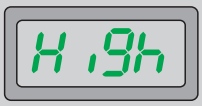
2. Operating mode Configuring active 

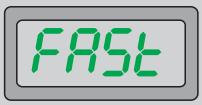
3. In the basic menu, select required mode by pressing the arrow keys 

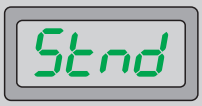
4. In the basic menu, select required mode by pressing the arrow keys 

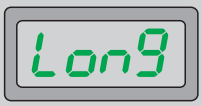
5. Response time is shown on the display 

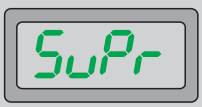
6. Select between high-precision setting (LonG), standard setting (Stnd), fastest setting (FASt), high speed setting (HiGh) and super long setting (SuPr) by pressing the arrow keys 



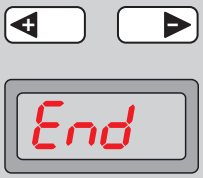








7. Finish selection with Mode key 

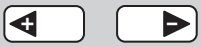
8. Select ending the adjustment (End) 

9. Finish selection with Mode key 

Response time	switching frequency	range
HiGh: 16 µs	31.25 kHz	short
FASt: 70 µs	7.1 kHz	reduced
Stnd: 250 µs	2 kHz	standard (factory setting)
LonG: 2 ms	250 Hz	high
SuPr: 8 ms	62.5 Hz	super long

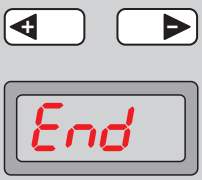
2.3 Time delay setting 

1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select required mode by pressing the arrow keys 
5. Timer setting is shown on the display 

6. Press Mode key, setting option flashes 
7. Select between deactivation (oFF), OFF delay (oFdY), ON delay (ondY), One-Shot (SHot), On-OFF-Delay (onoF) and On-Shot (onSh) by pressing the arrow keys 

8. Finish selection 
9. For activated time stage, setting the time value 

10. Finish selection with Mode key 
11. Select ending the adjustment (End) 

12. Finish selection with Mode key 

Option for various time delays and variable time range:
oFF = no time delay activated (factory setting),
oFdY = OFF delay (release delay),
ondY = ON delay (on delay),
SHot = One Shot (output active for set time window, regardless if object is present),
onoF = ON and OFF delay (on and release delay),
onSh = ON delay One Shot (set time window (One Shot) is active after response time (ON delay)).

Time delay selectable from 0,1 ... 9999 (0,1 ms ... 9999 ms)

Typical application:
Ignoring small variations of light intensity caused by dirt or temperature and detecting only the objects. Slight differences of light intensity can be detected without readjustment of the sensitivity.

2.4 Expert menu/detailed settings 

1. Press Mode key for 2 s 

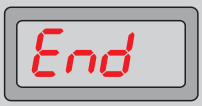
2. Operating mode Configuring active 

3. In the basic menu, select required mode by pressing the arrow keys 

4. Detail adjustment is shown on the display 

5. Press Mode key. Description of Expert menu from page 16 

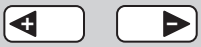
6. Select ending the adjustment (End) 

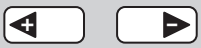
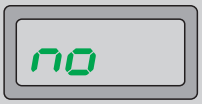


7. Finish selection with Mode key 

2.5 Reset 

1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select required mode by pressing the arrow keys 
5. Reset is shown on the display 

6. Press Mode key 
7. Select between “no” and “YES” by pressing the arrow keys 


8. Finish selection with Mode key 
9. Select ending the adjustment (End) 


10. Finish selection with Mode key 

All operating modes are reset to the factory setting “as-delivered ex works”.

Factory settings:

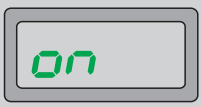
Switching mode:	ON light-switching	
Response time:	Standard = 250 µs	
Time stage:	Off	
Set display value to zero:	Off	
Display:	Numeric display	
Energy-saving mode:	Off	
Reverse Display:	Off	
Hysteresis setting:	Standard = 5	
Input setting:	Teach-in input	
ASC setting:	Off	
Power of the sender LED:	Standard = highest power	
Keylock:	Level 1	

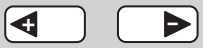
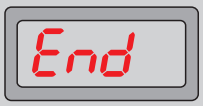
3.1 Set display value to zero 

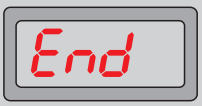
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. In the basic menu, select Expert mode by pressing the arrow keys 
4. Expert mode is shown on the display 

5. Press Mode key 
6. In Expert mode, select Set to zero by pressing the arrow keys 
7. Set to zero is shown on the display 

8. Press Mode key 
9. Select between “on” and “oFF” by pressing the arrow keys 


10. Finish selection with Mode key 
11. Close Expert mode with arrow key 


12. Finish selection with Mode key 
13. Select ending the adjustment (End) 


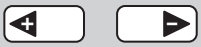
14. Finish selection with Mode key 

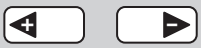
The current reception value is set to zero.
Adjusted switching threshold values are adapted.

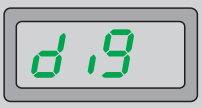
on: Function active
oFF: Function deactivated (factory setting)

3.2 Display settings 

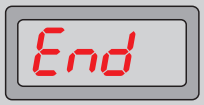
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys. 
5. Expert mode is shown on the display 

6. Press Mode key 
7. In Expert mode, select display settings by pressing the arrow keys 
8. Display settings are shown 

9. Press Mode key 
10. Select between numeric display (diG), bar display (bAr) and percentage display (Pct) using arrow keys 


11. Finish selection with Mode key 
12. Close Expert mode with arrow key 


13. Finish selection with Mode key 
14. Select ending the adjustment (End) 


15. Finish selection with Mode key 

diG: Numeric display (factory setting),
bAr: bar display,
Pct: Percentage display.

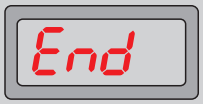
3.3 Energy-saving mode 

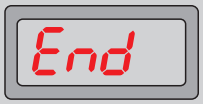
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. In the basic menu, select Expert mode by pressing the arrow keys 
4. Expert mode is shown on the display 

5. Press Mode key 
6. In Expert mode, select required mode by pressing the arrow keys 
7. Eco is shown on the display 

8. Press Mode key 
9. Select between “oFF” and “on” by pressing the arrow keys 


10. Finish selection with Mode key 
11. Close Expert mode with arrow key 


12. Finish selection with Mode key 
13. Select ending the adjustment (End) 


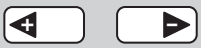
14. Finish selection with Mode key 

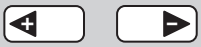
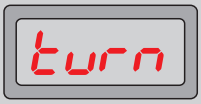
Energy-saving mode is activated. Nominal value (green) display will be switched off 20 seconds after a key has been pressed and the actual value (red) display will be dimmed. Therefore the energy consumption is reduced.

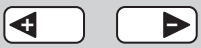
Pressing any key will activate the display.

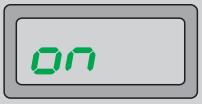
3.4 Reverse display 

1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. In the basic menu, select Expert mode by pressing the arrow keys 
4. Expert mode is shown on the display 

5. Press Mode key 
6. In Expert mode, select required mode by pressing the arrow keys 
7. Turn is shown on the display 

8. Press Mode key 
9. Select between “oFF” and “on” by pressing the arrow keys 

10. Finish selection with Mode key 
11. Close Expert mode with arrow key 

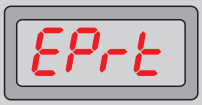

12. Finish selection with Mode key 
13. Select ending the adjustment (End) 


14. Finish selection with Mode key 

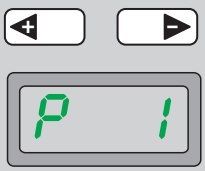
This function reverses the display (display upside-down). This offers a good readability also in difficult mounting positions.

3.5 Hysteresis setting 

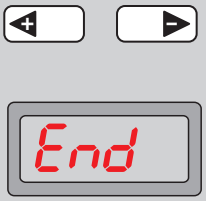
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys 
5. Expert mode is shown on the display 

6. Press Mode key 
7. In Expert mode, select Hysteresis by pressing the arrow keys 
8. Hysteresis setting is shown on the display 

9. Press Mode key 
10. Hysteresis setting by pressing the arrow keys 

11. Finish selection with Mode key 
12. Close Expert mode with arrow key 

13. Finish selection with Mode key 
14. Select ending the adjustment (End) 

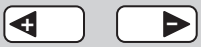
15. Finish selection with Mode key 

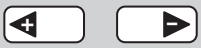
Setting of hysteresis in percent (%) of the switching threshold (nominal value).

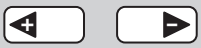
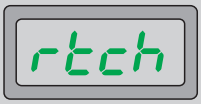
Value range: 1 ... 40

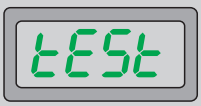
3.6 External input configuration 

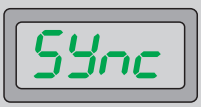
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys 
5. Expert mode is shown on the display 

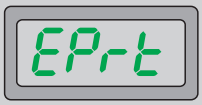
6. Press Mode key 
7. In Expert mode, select input configuration by pressing the arrow keys 
8. Input configuration is shown on the display 

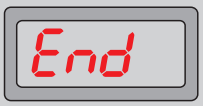
9. Press Mode key 
10. Select with arrow keys external teach-in (rtch), test input (tESt), synchronization (SYnc) or bus teach-in (Atch) 






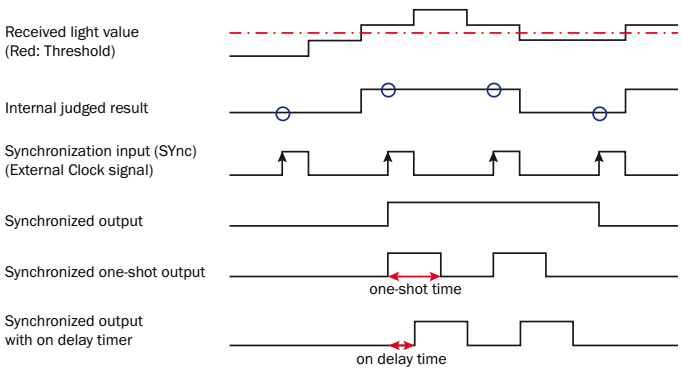
11. Finish selection with Mode key 
12. Close Expert mode with arrow key 

13. Finish selection with Mode key 
14. Select ending the adjustment (End) 


15. Finish selection with Mode key 

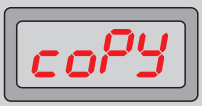
Configuration of the input:
rtch: Remote Teach-in, input for external teach-in
tESt: test input, sender LED is switched off
SYnc: Switching output (Q) is synchronized on an external input signal.
Atch: Teach-in for all amplifiers in bus mode according to the set teach mode.

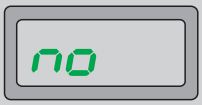


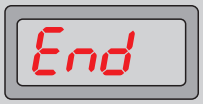
3.7 Copy mode  (Bus operation only)

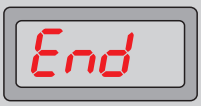
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys 
5. Expert mode is shown on the display 

6. Press Mode key 
7. In Expert mode, select Copy mode by pressing the arrow keys 
8. Copy mode setting is shown on the display 

9. Select between “no” and “YES” by pressing the arrow keys 


10. Close Expert mode with arrow key 


11. Finish selection with Mode key 
12. Select ending the adjustment (End) 


13. Finish selection with Mode key 

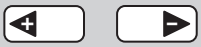
The copy function is only available in bus mode:
no: No copy function,
YES: Copy function, all settings of the base unit are copied to the connected expansion units. During the copy operation the green display shows the number of the actually copied extension unit.

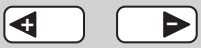
Note:
In locked expansion units (LocL), no data of the base unit is copied.

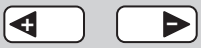
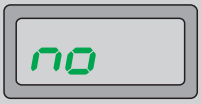
The copy function is not available when response time “HiGh” is selected.

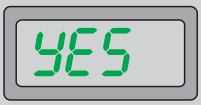
3.8 Master Teach-in  (Bus operation only)

1. Press Mode key for 2 s 
2. Operating mode Configuring active 

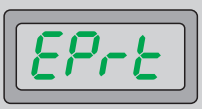
3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys. 
5. Expert mode is shown on the display 

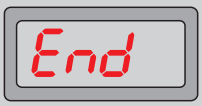
6. Press Mode key 
7. In Expert mode, select Master teach-in by pressing the arrow keys 
8. Master teach-in setting is shown on the display 

9. Select between “no” and “YES” by pressing the arrow keys 




10. Close Expert mode with arrow key 

11. Finish selection with Mode key 
12. Select ending the adjustment (End) 


13. Finish selection with Mode key 

Teaching of all connected extension units (only available in bus mode):

no: Does not perform teach-in,
YES: Performs teach-in for all connected extension units (see page 6) according to the set teach-in mode.

Note:
Locked (LocL) extension units are not taught.

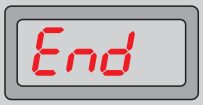
3.9 ASC setting 

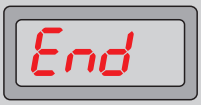
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys 
5. Expert mode is shown on the display 

6. Press Mode key 
7. In Expert mode, select ASC setting by pressing the arrow keys 
8. ASC setting is shown on the display 

9. Press Mode key 
10. Select between “on” and “oFF” by pressing the arrow keys 


11. Finish selection with Mode key 
12. Close Expert mode with arrow key 


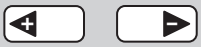
13. Finish selection with Mode key 
14. Select ending the adjustment (End) 


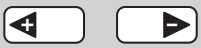
15. Finish selection with Mode key 

on: automatically adapting switching threshold to environment,
oFF: switch off ASC (factory setting).

3.10 Power setting of the sender LED 

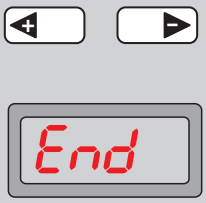
1. Press Mode key for 2 s 
2. Operating mode Configuring active 

3. Press Mode key 
4. In the basic menu, select Expert mode by pressing the arrow keys 
5. Expert mode is shown on the display 

6. Press Mode key 
7. In Expert mode, select power setting by pressing the arrow keys 
8. Sender power setting is shown on the display 

9. Press Mode key 
10. Select between standard setting, medium strength setting and low strength setting by pressing the arrow keys 

11. Finish selection with Mode key 
12. Close Expert mode with arrow key 

13. Finish selection with Mode key 
14. Select ending the adjustment (End) 

15. Finish selection with Mode key 

Adjustment of the luminosity of the sender LED:

IIIII Full luminosity (factory setting),
III medium strength,
II low strength.

The power of the sender LED can be set in three stages: saturation, e. g. for highly reflective objects, is prevented, and the life of the sender LED is extended.

Typical applications: highly reflective objects, or very short distance to the object, semi-transparent objects.

3.11 Keylock LocL

1. Press Mode key for 2 s

2. Operating mode Configuring active

3. In the basic menu, select Expert mode by pressing the arrow keys

4. Expert mode is shown on the display

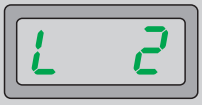
5. Press Mode key

6. In Expert mode, select Lock Level by pressing the arrow keys

7. LocL is shown on the display

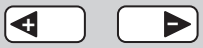
8. Press Mode key

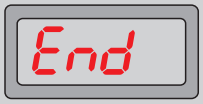
9. Select between Level 1 (L 1) and Level 2 (L 2) by pressing the arrow keys



10. Finish selection with Mode key

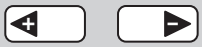
11. Close Expert mode with arrow key

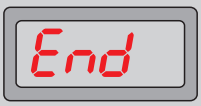




12. Finish selection with Mode key

13. Select ending the adjustment (End)





14. Finish selection with Mode key

There are two levels for keylock available:
Level 1 (L 1): all input functions are blocked (keys and external input),
Level 2 (L 2): all keys are blocked, only external input active.

Notes

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