

design 20.6 x 65 x 50mm

diffuse reflection sensor (spot) measuring range 100 ... 600mm

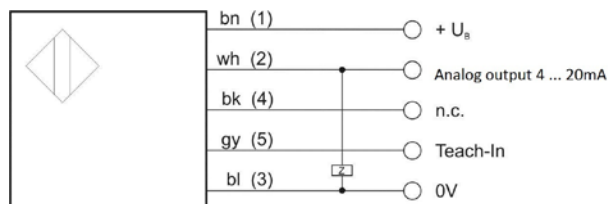
- ✓ robust metal housing made of diecast zinc
- ✓ high resolution
- ✓ slight linearity deviation
- ✓ short response time
- ✓ LED switching state display
- ✓ rotatable M12-connector, 5-pin

**Technical Data**

**PT650028**

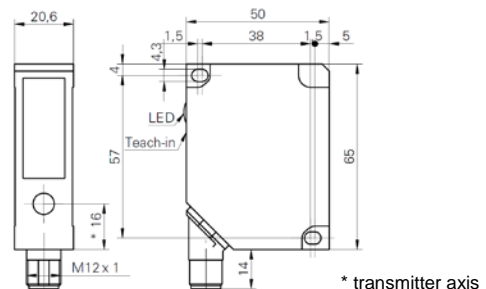
measuring range	100 ... 600mm
resolution	0.015 ... 0.67mm
linearity deviation	± 0.05 ... ± 2mm
output signal	4 ... 20mA
current consumption (w/o load)	100mA
operating voltage U <sub>B</sub>	12 ... 28V DC
load resistance	< (U <sub>B</sub> - 6)V / 0.02A
transmitting element	laser diode red, pulsed, laser protection class 2
wave length	650nm
beam form / diameter	round / 2mm
suppression of interfering pulses	< 30ms
response / decay time	< 0.9ms, with reflectivity < 7% 2.8ms
display (operating)	LED green
display (alarm / soiling)	LED red
adjustment	teach-in button and teach-in wire
distance teach-in limits	> 10mm
short-circuit protection	+
reverse polarity protection	+, U <sub>B</sub> to GND
dimensions	20.6x65x50mm
material (housing)	zinc diecast
material (front screen)	Glass
temperature (operating)	0 ... 50°C
protection class (EN 60529)	IP67
connection	M12-connector, 5-pin, rotatable
connection accessories	e.g. VK205625
mounting bracket	AP000031
protective shield (PMMA)	AP000041

**pin configuration**



bn=brown, wh=white, bk=black, gy=gray, bl=blue  
terminal marking of cable socket in brackets

**dimensional drawing**



\* transmitter axis

**Warning:** Never use these devices in applications where the safety of a person depends on their functionality.

### Operating instructions

For the devices of this series it is possible to teach a section within the standard measuring range. Thus, the total hub of the analog output can be used over the desired measuring range. The sensor can be taught via the teach button next to the LED as well as via the teach-in wire (white).

### Teach process

Within 5 minutes after power on, the measuring range can be determined via the teach button. After the teach process the 5 minutes start again. Then, the teach button is locked. For running another teach-process with the teach button the operating voltage first has to be switched off. The teach-in wire is active all the time.

During the teach process the red LED serves as acknowledgement signal. While it is lighting up, the laser switches off.

#### Procedure:

1. Press the button. The red LED has to light up (if not, the 5 minutes expired).
2. Hold down the button for approx. 5 seconds until the red LED flashes.
3. Release the button.
4. Place the object to be measured at the position where the sensor produces 4mA.
5. Press the button briefly again, as acknowledgement signal the red LED lights up for approx. 3 sec, afterwards it flashes again.
6. Place the object to be measured at the position where the sensor produces 20mA.
7. Press the button briefly, as acknowledgement signal the red LED lights up for approx. 3 sec, then it lights off and flashes briefly. The sensor is now ready for operation and works with the new measuring range. By leaving this measurement range, the red LED lights up.

In case that one of the two taught limits was outside the standard measuring range or the distance between both limits was too small, the red LED flashes instead the 2. acknowledgement signal for approx. 5 sec. The new settings are not valid! Then the device is also ready for operation, but works with the previous measuring range. The teach process has to be repeated.

If you like to teach the measuring range via the teach-in wire, proceed in the same sequence. Instead of pressing the button, connect the white wire with the operating voltage. The teach-in wire is active all the time.

Note: After the teach process the teach-in wire should be connected to the 0V-potential to avoid interferences.

### How to reset to the standard measuring range

If you like to reset the sensor to the factory settings via the teach button, it is only possible within 5 minutes after power-on or after the teach-process. Proceed as follows:

1. Press the button and hold it down. The red LED lights up for approx. 5 sec, then it flashes.
2. Don't release the button. After another 10 sec. The LED starts flashing rapidly.
3. Release the button. The standard measuring range is now programmed again.

If you like to reset the device to the standard measuring range via the teach-in-wire, proceed in the same sequence. Instead of pressing the button connect the white wire with the operating voltage. The teach-in wire is active all the time.

**Attention:** To avoid measurement errors due to temperature the device should be switched on approx. 10 ... 15 minutes before the first measuring!

