Baumer Passion for Sensors

Teach Manual

AlphaProx

Inductive distance measuring sensors with linear characteristic and teach input

Version: 1.0

General Information

This manual applies to AlphaProx sensors featuring the following teach modes (according to the datasheet):

- 1-point analog
- 2-point analog
- Factory reset

The assembly instruction also states the available teach modes (on page 3) and the sensor type (on page 2):

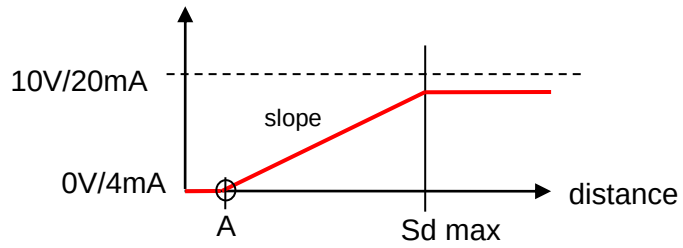
- Sensors with linear characteristic and teach input (IRxx.DxxL-xxx.xx1E)
- Factor 1 sensors with linear characteristic and teach input (IRxx.DxxF-xxx.xx1E)
- Sensors with teach input and linear characteristic on aluminum targets (IRxx.DxxM-xxx.xx1E)

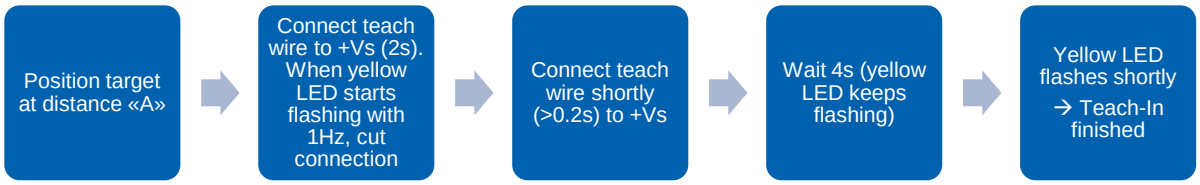
General procedure:
To teach the sensor, the teach wire must be connected to the positive supply voltage of the sensor (+Vs). Depending on the duration of the contact, different teach levels can be selected. A flashing LED indicates that the teach procedure has started.

Teach Level 1 (1-Point Teach Analog)

The *1-point teach analog* is typically used in applications where a short setup time are desired and the installation tolerances shall be compensated. Two situations can be distinguished:

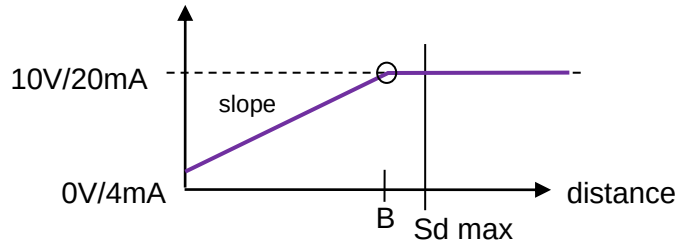
1) Minimum distance: During the teach procedure the target is positioned at the minimum distance relative to the sensor (position “A” in the lower graph). In the application the target moves away from the sensor. In this situation the sensor will be taught to provide an output signal of 0V (or 4mA) at position “A”.

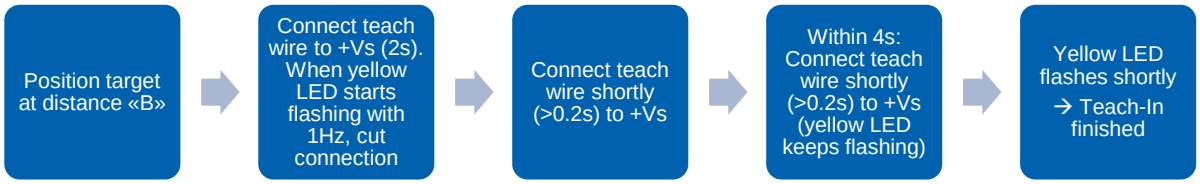




Teach procedure: 1-point teach analog (the target is close and moves away from sensor)

2) Maximum distance: During the teach procedure the target is positioned at the maximum distance relative to the sensor (position “B” in the lower graph). In the application the target moves towards the sensor. In this situation the sensor should be set to have an output signal of 10V (or 20mA) at position “B”.





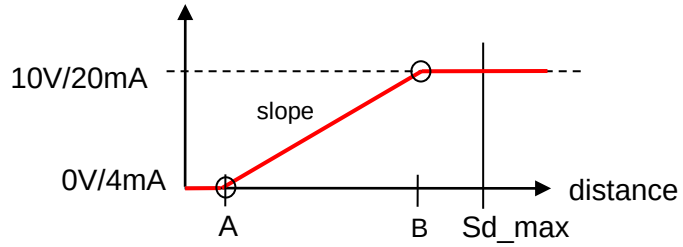
Teach procedure: 1-point teach analog (the target is far away and moves towards the sensor)

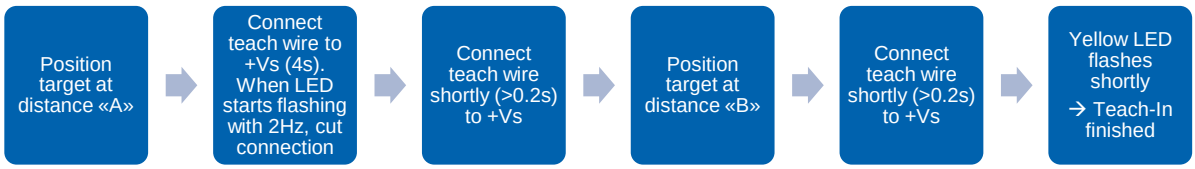
When using the *1-point teach analog* the sensor will either never reach the maximum output value (case 1) or the minimum output value (case 2).

Teach Level 2 (2-Point Teach Analog)

The *2-point teach analog* is typically used in applications where two reference positions can be set and where installation tolerances and tolerances of the target shall be compensated. The *2-point teach analog* allows to change the slope of the sensor output. Depending on the teach order the slope of the sensor's output signal will be either rising or falling:

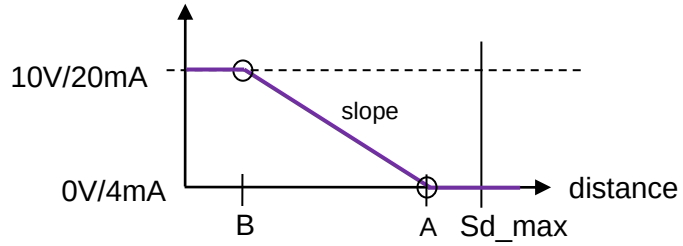
1) Rising slope: To teach the first position, the target is placed at the minimum distance relative to the sensor (position "A" in the lower graph). For the second position, the target is placed at the maximum distance (position "B"). For distances smaller than "A" the output signal will be 0V (or 4mA), for distances larger than "B" the output will be 10V (or 20mA).

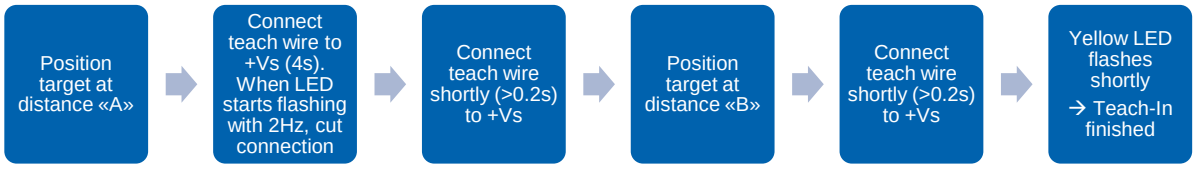




Teach procedure: 2-point teach analog (rising slope)

2) Falling slope: To teach the first position, the target is placed at the maximum distance relative to the sensor (position "A" in the lower graph). For the second position, the target is placed at the minimum distance (position "B"). For distances larger than "A" the output signal will be 0V (or 4mA), for distances smaller than "B" the output will be 10V (or 20mA).

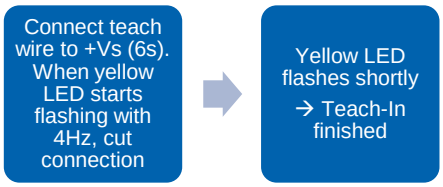




Teach procedure: 2-point teach analog (falling slope)

Teach Level 3 (Factory Reset)

This will restore the default settings the sensor had when leaving the factory. The default settings are stated in the mounting instructions which are delivered with the sensor.



Teach procedure: Factory reset

If the teach wire is connected to +Vs for more than 10s, the teach procedure is aborted and the sensor keeps its previous settings. This is indicated by an LED flashing frequency of 8Hz.