RU… High-End Ultrasonic Sensors — Setting Sensor Functions

Setting a Switching Point via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply
▶ Position the target at a distance from the switching point to be taught in
⇨ The LED on the sensor lights up yellow

▶ Select output 1: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor slowly flashes green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Store the switching point: Press and hold the GND button again for 2–7 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow
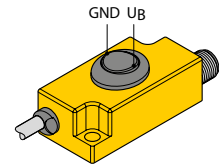
Setting a Switching Point via Buttons on the Sensor

▶ Connect the power supply to the sensor
▶ Position the target at a distance from the switching point to be taught in
⇨ The LED on the sensor lights up yellow

> **NOTE**
> The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.

▶ Select output 1: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor slowly flashes green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Store the switching point: Press and hold button 1 again for 2–7 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will rapidly flash green
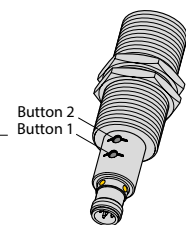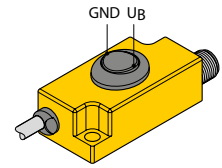⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting a Switching Window via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply
▶ Position the target at a distance from the first switching point
⇨ The LED on the sensor lights up yellow

▶ Select output 1: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor slowly flashes green
⇨ If an error has occurred, the LED flashes green/yellow

▶ Store switching point 1: Press and hold the GND button for 8–13 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will slowly flash yellow
⇨ If an error has occurred, the LED flashes green/yellow

▶ Position the target at a distance from the second switching point

▶ Store switching point 2: Press and hold the GND button for 2–7 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will rapidly flash green
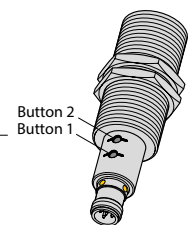⇨ If an error has occurred, the LED rapidly flashes green/yellow

GND U$_B$

Setting a Switching Window via Buttons on the Sensor

▶ Connect the power supply to the sensor
▶ Position the target at a distance from the first switching point
⇨ The LED on the sensor lights up yellow

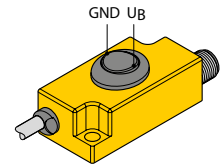Button 2
Button 1

> **ℹ NOTE**
> The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.

▶ Select output 1: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor slowly flashes green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Store the switching point: Press and hold button 1 for 8–13 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will slowly flash yellow
⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Position the target at a distance from the second switching point

▶ Store switching point 2: Press and hold button 1 for 2–7 seconds
⇨ If the switching point has been successfully taught in, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting Hysteresis Mode via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply
▶ Position the target at a distance from the first switching point
⇨ The LED on the sensor lights up yellow

GND U$_B$

▶ Select output 1: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Store switching point 1: Press and hold the GND button again for 8–13 seconds.
⇨ If the switching point has been successfully taught in, the LED on the sensor will slowly flash yellow

▶ Position the target at a distance from the second switching point
▶ Store switching point 2: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor rapidly flashes green

▶ Select output 1: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Apply the set switching window: Press and hold the GND button for 8–13 seconds
⇨ The LED on the sensor slowly flashes yellow

▶ Set hysteresis mode: Press and hold the GND button for at least 8 seconds
⇨ The LED on the sensor rapidly flashes green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting Hysteresis Mode via Buttons on the Sensor

▶ Connect the power supply to the sensor
▶ Position the target at a distance from the first switching point
⇨ The LED on the sensor lights up yellow

Button 2
Button 1

i NOTE
The teach buttons are automatically locked 300 seconds after the power supply is connected. A power reset is required before the teach-in process using the buttons on the device can be attempted again.
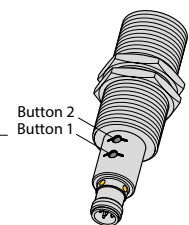
▶ Select output 1: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Store switching point 1: Press and hold button 1 again for 8–13 seconds.
⇨ If the switching point has been successfully taught in, the LED on the sensor will slowly flash yellow

▶ Position the target at a distance from the second switching point
▶ Store switching point 2: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor rapidly flashes green

▶ Select output 1: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Apply the set switching window: Press and hold button 1 for 8–13 seconds
⇨ The LED on the sensor slowly flashes yellow

▶ Set hysteresis mode: Press and hold button 1 for at least 8 seconds
⇨ The LED on the sensor rapidly flashes green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting Operation as a Retroreflective Sensor via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply
▶ Position the reflector within the sensing range
⇨ The LED on the sensor lights up yellow

▶ Teach-in operation as a retroreflective sensor: Press and hold button U_B for at least 20 seconds
⇨ If operation as a retroreflective sensor has been successfully taught in, the LED on the sensor will rapidly flash green.
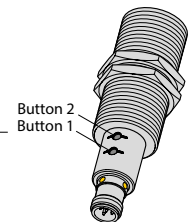⇨ If an error has occurred, the LED rapidly flashes green/yellow

GND U_B
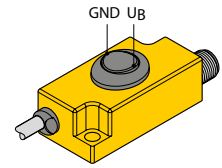
Setting Operation as a Retroreflective Sensor via Buttons on the Sensor

▶ Connect the power supply to the sensor
▶ Position the reflector within the sensing range
⇨ The LED on the sensor lights up yellow

Button 2
Button 1

ℹ NOTE
The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.
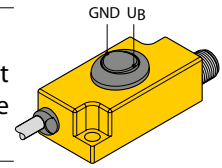
▶ Teach-in operation as a retroreflective sensor: Press and hold button 2 for at least 20 seconds
⇨ If operation as a retroreflective sensor has been successfully taught in, the LED on the sensor will rapidly flash green.
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting the Measuring Range for Analog Outputs via Teach Adapter

GND U$_B$

> **NOTE**
> If output 2 is set as an analog output, the closer teach point corresponds to the first limit value (4 mA/0 V) and the teach point further away corresponds to the second limit value (20 mA/10 V).

▶ Connect the teach adapter between the sensor and the power supply
▶ Position the target for the first limit value
⇨ The LED on the sensor lights up yellow

▶ Select output 2: Press and hold the GND button for 8–13 seconds
⇨ The LED on the sensor slowly flashes green

▶ Store the first limit value: Press and hold the GND button for 8–13 seconds
⇨ If the limit value has been successfully taught in, the LED on the sensor will slowly flash yellow
⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Position the target for the second limit value
▶ Store the second limit value: Press and hold the GND button for 2–7 seconds
⇨ If the limit value has been successfully taught in, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

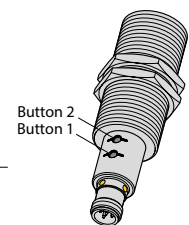# Setting the Measuring Range for Analog Outputs via Buttons on the Sensor

▶ Connect the power supply to the sensor
▶ Position the target for the first limit value
⇨ The LED on the sensor lights up yellow

Button 2
Button 1

> **NOTE**
> The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.

▶ Select output 2: Press and hold button 1 for 8–13 seconds
⇨ The LED on the sensor slowly flashes green

▶ Store the first limit value: Press and hold button 1 for 8–13 seconds
⇨ If the limit value has been successfully taught in, the LED on the sensor will slowly flash yellow
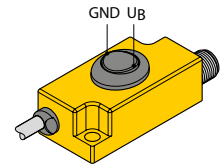⇨ If an error has occurred, the LED rapidly flashes green/yellow

▶ Position the target for the second limit value
▶ Store the second limit value: Press and hold button 1 for 2–7 seconds
⇨ If the limit value has been successfully taught in, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting Output 2 as a Voltage Output via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply

▶ Select output 2: Press and hold the GND button for 8–13 seconds
⇨ The LED on the sensor slowly flashes green

▶ Change the configuration of output 2 from a current output to a voltage output: Press the U_B button for 8–13 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash green

LED frequency	Output
1 Hz	Current output
2 Hz	Voltage output
3 Hz	Switch point output

⇨ If an error has occurred, the LED rapidly flashes green/yellow

Setting Output 2 as a Voltage Output via Buttons on the Sensor

▶ Connect the power supply to the sensor

NOTE
The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.
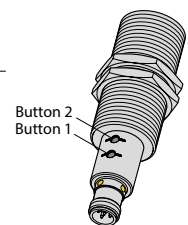
▶ Select output 2: Press and hold button 2 for 8–13 seconds
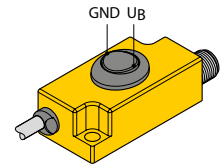⇨ The LED on the sensor slowly flashes green

▶ Change the configuration of output 2 from a current output to a voltage output: Press and hold button 2 for 8–13 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash green

LED frequency	Output
1 Hz	Current output
2 Hz	Voltage output
3 Hz	Switch point output

⇨ If an error has occurred, the LED rapidly flashes green/yellow

Inverting Analog Outputs via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply

▶ Select output 2: Press and hold the GND button for 8–13 seconds
⇨ The LED on the sensor slowly flashes green

▶ Invert the output: Press and hold the GND button for at least 14 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash yellow
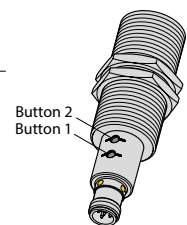⇨ If an error has occurred, the LED rapidly flashes green/yellow

Inverting Analog Outputs via Buttons on the Sensor

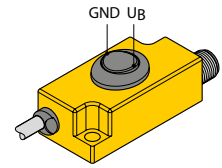▶ Connect the power supply to the sensor

NOTE
The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.

▶ Select output 2: Press and hold button 1 for 8–13 seconds
⇨ The LED on the sensor slowly flashes green

▶ Invert the output: Press and hold button 1 for at least 14 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash yellow
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Inverting Digital Outputs via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply

▶ Select output 1: Press and hold the GND button for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Invert the output: Press and hold the GND button for at least 14 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash yellow
⇨ If an error has occurred, the LED rapidly flashes green/yellow

GND U$_B$

Inverting Digital Outputs via Buttons on the Sensor

▶ Connect the power supply to the sensor
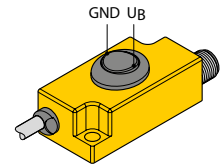

Button 2
Button 1

NOTE
The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.
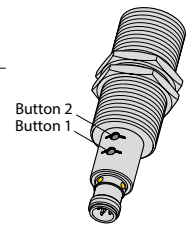
▶ Select output 1: Press and hold button 1 for 2–7 seconds
⇨ The LED on the sensor slowly flashes green

▶ Invert the output: Press and hold button 1 for at least 14 seconds
⇨ If the output has been successfully taught in, the LED on the sensor will rapidly flash yellow
⇨ If an error has occurred, the LED rapidly flashes green/yellow

Resetting to Factory Settings via Teach Adapter

▶ Connect the teach adapter between the sensor and the power supply

▶ Reset the sensor to the factory settings: Press and hold the GND button for 14–19 seconds
⇨ The LED on the sensor rapidly flashes green/yellow

▶ Confirm the reset to factory settings: Press and hold the GND button for 2–7 seconds
⇨ If the sensor has been successfully reset to the factory settings, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow

GND U$_B$

Resetting to Factory Settings via Buttons on the Sensor

▶ Connect the power supply to the sensor

ℹ **NOTE**
The timeout period for the teach-in process is 300 seconds after connecting the power supply. Once this timeout period is over, the teach buttons are automatically locked. A power reset is required before the teach-in process using the buttons on the device can be attempted again.
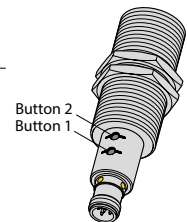
Button 2
Button 1

▶ Reset the sensor to the factory settings: Press and hold button 1 for 14–19 seconds
⇨ The LED on the sensor rapidly flashes green/yellow

▶ Confirm the reset to factory settings: Press and hold button 1 for 2–7 seconds
⇨ If the sensor has been successfully reset to the factory settings, the LED on the sensor will rapidly flash green
⇨ If an error has occurred, the LED rapidly flashes green/yellow