

Datasheet GRENTON MULTISENSOR IR
SEN-181-T-0x

Grenton Multisensor IR provides many environmental parameters, such as: temperature, humidity, CO2, TVOC, atmospheric pressure, sound level and ambient light. It contains an IR (Infrared) transceiver, that allows you to control external devices such as Audio, TV, Air Conditioning. The versatile and intuitive control interface makes it easy and quick to control an individual device or the whole home.



1. Parameters - IR_CONTROLLER

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| Methods: | |
| SendCode | Sends the IR code stored at index CodeNumber, signaling the fact with the green LED. The red LED indicates that there is no code stored |
| LearnCode | Calls the IR code learning mode at index CodeNumber |
| EraseFlash | Erasing IR codes stored in Flash memory |
| Events: | |
| OnIrSend | Event occurring when the IR code send takes place |
| OnLearningStatusChange | Event occurring when a change in the learning status takes place |
| OnLearningOK | Event occurring when the IR code learning status changes to "OK" |
| OnLearning | Event occurring when the IR code learning status changes to "Learning" |
| OnLearningFail | Event occurring when the IR code learning status changes to "Learning Fail" |

Learning the IR Controller commands from an external infrared transmitters (e.g. IR remote control)

- Learning steps:
1. Prepare the IR signal source (e.g. IR remote control).
 - ATTENTION!** Signals in the 940 nm IR band from other devices may disrupt the learning process
 2. Call the LearnCode(CodeNumber) method, where CodeNumber is the index at which the new IR code will be stored in Flash memory. The green LED starts blinking to indicate ready to receive an IR code. In this mode, the red LED signals IR disturbances, which can be interpreted as an IR code interrupting the learning process.
 3. Point the infrared transmitter at the Multisensor and send the IR code once.
 4. The Multisensor signals the correct reception and storing of the IR code by a 500ms flash of the green LED, while the red LED signals failure.
 5. Call the SendCode(CodeNumber) method to validate the newly stored IR code.

2. Parameters - TEMPERATURE_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1°C) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | Ambient temperature value from 0.0 to 45.0 (°C) |
| Calibration | Temperature calibration factor within -10°C to +10°C |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

3. Parameters - LIGHT_SENSOR_LUX

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1 lx) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | Light intensity value from 0 to 15000 lx |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

4. Parameters - HUMIDITY_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1%) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | The value of air humidity from 0 to 100 % |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

5. Parameters - PRESSURE_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1 hPa) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | The value of the atmospheric pressure from 300 to 1100 hPa |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

6. Parameters - AIR_CO2_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1 ppm) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | Estimated value of CO2 in the range from 400 to 60000 ppm |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

- When the brand new device is powered on for the first time or after calling the Recalibration() method of the AIR_CO2_SENSOR object, the CO2 and VOC sensors are calibrated, which may take up to 1.2 hours.

7. Parameters - AIR_VOC_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1%) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | Volatile Organic Compounds (VOC) value in the range from 0 to 60000 ppb |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

8. Parameters - SOUND_SENSOR

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| Properties: | |
| Threshold | Hysteresis size (accuracy 0.1 dB) specifying the sensitivity when the following events are generated: OnValueChanged, OnValueLower, OnValueRise |
| Sensitivity | Time (in ms) for which the sampled values are averaged |
| Value | Sound intensity from 30 to 130 dB |
| MinValue | Minimum value of the Value property after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the Value property after exceeding which the OnOutOfRange event is generated |
| Events: | |
| OnValueChanged | Event resulting from changing input state |
| OnValueRise | Event resulting from exceeding the upper threshold of hysteresis |
| OnValueLower | Event resulting from exceeding the lower threshold of hysteresis |
| OnOutOfRange | Event resulting from exceeding the (MinValue - MaxValue) range |
| OnInRange | Event occurs when value returns to the (MinValue - MaxValue) range |

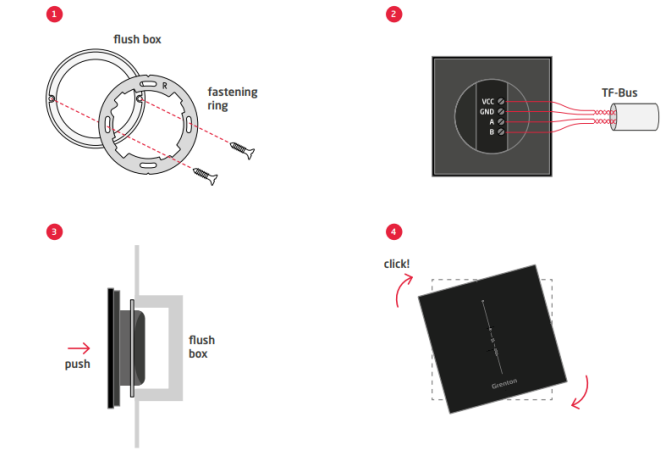
9. Parameters - POWER_SUPPLY_VOLTAGE

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| Properties: | |
| Value | Current power supply voltage value |
| Value% | Current power supply voltage value as a percentage of the maximum value (MaxValue property) |
| Sensitivity | Minimum value change of the power supply voltage that generates OnValueChanged, OnValueLower or OnValueRise events |
| MinValue | Minimum value of the power supply voltage after exceeding which the OnOutOfRange event is generated |
| MaxValue | Maximum value of the power supply voltage after exceeding which the OnOutOfRange event is generated |
| Methods: | |
| SetSensitivity | Sets the sensitivity of measuring the power supply voltage |
| SetMinValue | Sets the MinValue property |
| SetMaxValue | Sets the MaxValue property |
| Events: | |
| OnValueChanged | Event occurs when the value of the power supply voltage changes |
| OnValueLower | Event occurs when a value of the power supply voltage lower than the value from the last reading appears at input |
| OnValueRise | Event occurs when a value of the power supply voltage higher than the value from the last reading appears at input |
| OnOutOfRange | Event occurs when the value of the power supply voltage exceeding the permissible the (MinValue - MaxValue) range |
| OnInRange | Event occurs when the value of the power supply voltage returns to the (MinValue - MaxValue) range |

10. Technical data

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| Temperature sensor | 0 to +45 °C +/-0.5 °C at 25 °C |
| Humidity sensor | 0 to 100 (Non-Condensation) %RH +/-5 %RH |
| Pressure sensor | 300 to 1100 hPa +/-2 hPa |
| CO2 sensor(estimated by the H ₂) | 400 to 60000 ppm +/-10 % |
| TVOC sensor | 0 to 60000 ppm +/-15 % |
| Ambient light sensor | 0 to 15000 lx +/-10 % |
| Sound level sensor | 30 to 130 dB +/-3 dB |
| IR(Infrared) transceiver | 940 nm, carrier frequency 38 kHz |
| Device power supply | 24 Vdc |
| Maximal power consumption | 0,3 W |
| Maximal device current | 14 mA |
| Maximal wire cross section | 1,5 mm ² |
| Weight | 110 g |
| Dimensions (H/W/D) | surface part: 80/80/10 mm, concealed part: Ø 50 mm / h: 22 mm |
| Operating temperature range | 0 to +45 °C |

11. Wiring diagram



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| VCC | power supply signal |
| GND | power supply ground signal |
| A | TF-bus A signal |
| B | TF-bus B signal |

12. Warnings and cautionary statements



ATTENTION !

- Before proceeding with the assembly, read the installation schematics and full instructions available at www.grenton.com. Failure to follow the guidelines contained in the instructions and other requirements of due care valid as a result of the nature of the equipment (device) may be dangerous to life / health, damage the device or installation to which it is connected, damage

other property or violate other applicable regulations. The manufacturer of the device, Grenton Sp. z o.o. does not bear any responsibility for the damage (property and non-property related) resulting from the assembly and / or use of the equipment not in accordance with the instructions and / or due diligence in handling the equipment (device).

- Device power supply, permissible load or other characteristic parameters have to be in accordance with the device specification, described in particular in the "Technical data" section.
- The product is not intended for children and animals.
- If you have technical questions or comments about the device operation, contact Grenton Technical Support.
- Answers to frequently asked questions can be found at: www.support.grenton.pl



DANGER !

- Danger to life caused by electric current!
- The components of the installation (individual devices) are designed to work in a home electrical installation or directly in its

vicinity. Incorrect connection or use may cause a fire or electric shock.

- All work related to the installation of the device, in particular works involving interference in the electrical installation, may be performed only by a person with appropriate qualifications or licences.
- When installing the device, make sure that the power supply voltage is disconnected from the circuit in which the device is connected or near which the assembly takes place.

13. CE marking

The manufacturer declares that the device is in full compliance with the requirements of EU legislation that includes the directives of a new approach appropriate for this equipment. In particular, Grenton Sp. z o.o. declares that the device fulfills the requirements on safety, specified by law, and that it conforms to

the national regulations that implement the appropriate directives: The Directive on the electromagnetic compatibility (EMC - 2014/30/UE) and the Directive on the limitation of the use of specific substances in electrical and electronic equipment (RoHS II - 2011/65/UE).



14. Warranty

Warranty available at: www.grenton.com/warranty

15. Manufacturer contact details

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