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

Properties:	
SavedCodes	Number of saved codes in Flash memory
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
EraseCode	Erases the IR code stored at index CodeNumber
EraseFlash	Erasing all of the 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)

Multisensor IR records IR codes in any format with a maximum duration of 500 ms. Built-in Flash memory guarantees storage of up to 100 codes in NEC format size. This number may be limited for larger IR codes. The red LED lights for 1 s after the end of the learning process when the Flash memory is full.

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 500 ms 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

Properties:	
Threshold	Hysteresis size (accuracy 0.1 °C) specifying the sensitivity when the following events are generated: OnValueChange, 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 -1.0 °C to +1.0 °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:	
OnValueChange	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

Properties:	
Threshold	Hysteresis size (accuracy 0.1 lx) specifying the sensitivity when the following events are generated: OnValueChange, 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:	
OnValueChange	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

Properties:	
Threshold	Hysteresis size (accuracy 0.1 %) specifying the sensitivity when the following events are generated: OnValueChange, 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:	
OnValueChange	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

Properties:	
Threshold	Hysteresis size (accuracy 0.1 hPa) specifying the sensitivity when the following events are generated: OnValueChange, 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
Altitude	Height of the measuring point in meters above sea level
Events:	
OnValueChange	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

Properties:	
Threshold	Hysteresis size (accuracy 1 ppm) specifying the sensitivity when the following events are generated: OnValueChange, 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
Methods:	
Recalibration	Forces CO2 sensor calibration (calibration time up to 12 h)
Events:	
OnValueChange	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 12 hours.
- The concentration of CO2 is estimated from the concentration of hydrogen in the exhaled air.

7. Parameters - AIR_VOC_SENSOR

Properties:	
Threshold	Hysteresis size (accuracy 1 ppb) specifying the sensitivity when the following events are generated: OnValueChange, 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:	
OnValueChange	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

Properties:	
Threshold	Hysteresis size (accuracy 0.1 dB) specifying the sensitivity when the following events are generated: OnValueChange, 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:	
OnValueChange	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

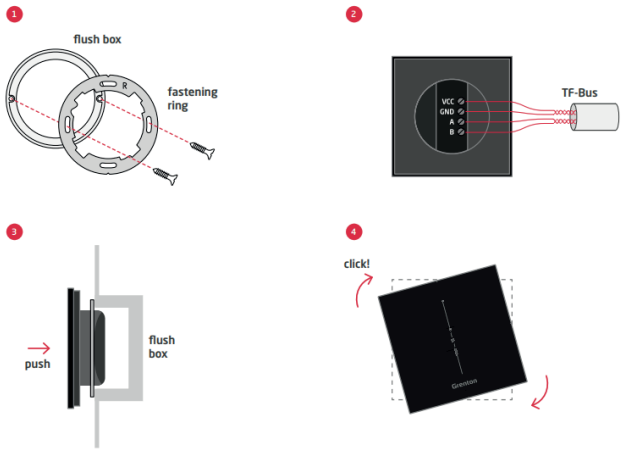
9. Parameters - POWER_SUPPLY_VOLTAGE

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 OnValueChange, 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:	
OnValueChange	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

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 ppb +/-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



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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