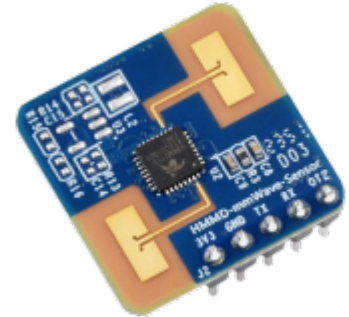


# Radar Module RD-xx

## Radar Module Rd-03

The Radar Module **Rd-03** features silicon micro-S3KM1110 chips, which are integrated single-chip millimeter-wave sensor SoCs based on **FMCW** (*Frequency-Modulated Continuous-Wave*) radar transceiver technology. The S3KM1110 operates in the 24 GHz K-band, with a maximum modulation bandwidth of 1 GHz per frequency.



The FMCW continuous wave technology is used to detect targets within a specific area. When combined with radar signal processing and an accurate human body sensing algorithm, it enables high-sensitivity detection of human presence. This allows for recognizing human bodies in both moving and still states.

The Rd-03 module can detect the presence of a moving or micro-movements of a human body within a specific area and provides real-time detection results. It includes a visual configuration tool that makes it easy to set the sensing distance, sensitivity levels, and unmanned delay time.

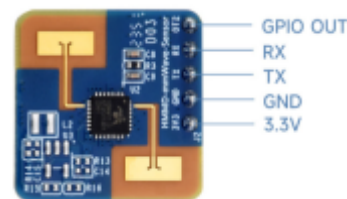
### Technical characteristics

|   |                         |
|---|-------------------------|
| <b>Package</b>  | DIP-5                   |
| <b>Chip</b>   | S3KM1110                |
| <b>Size</b>   | 20 * 20 mm              |
| <b>Antenna</b>  | On-board antenna        |
| <b>Frequency</b>  | 24 .. 24.25 GHz K-band  |
| <b>Operation temperature</b>                                | -40 .. 85 °C            |
| <b>Storage environment</b>                                  | -40 .. 125 °C, < 90% RH |
| <b>Support voltage</b>                                      | <b>3.0 .. 3.6 V</b>     |
| <b>Power supply current <math>\geq 200\text{m A}</math></b> |                         |
| <b>Range</b>  | < 10 m                  |
| <b>Max Sensing Range</b>                                    | < 5 m                   |
| <b>Radar angle</b>  | $\pm 60$ degrees        |
| <b>Interface</b>  | UART                    |
| <b>UART baud rate</b>                                       | Default 115200 bps      |



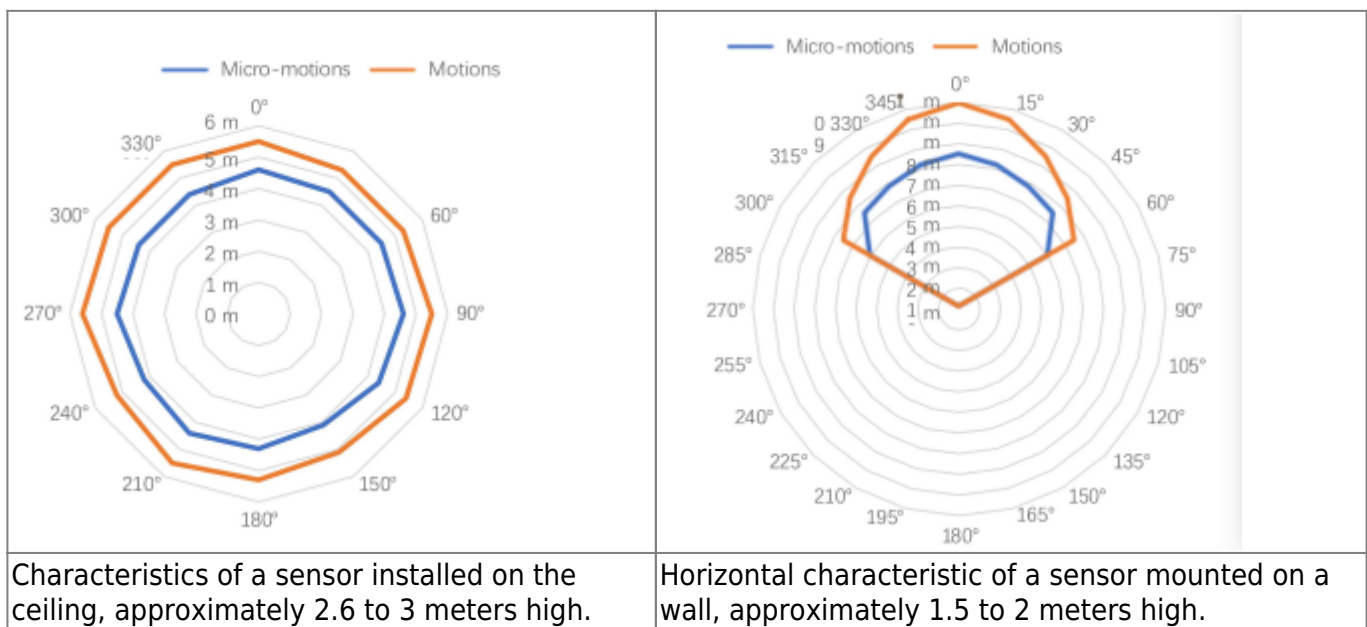
Rd-03 is an electrostatically sensitive piece of equipment; special precautions should be taken during handling.

## PIN out



|            |  |
|------------|--|
| <b>3V3</b> | input power  |
| <b>GND</b> | Ground   |
| <b>OT1</b> | UART_TX  |
| <b>RX</b>  | UART_RX  |
| <b>OT2</b> | Detection result output, output high level when sensing, output low level when not sensing |

## Characteristics of perception



## Sources

<https://cdn.robotshop.com/media/A/Ait/RB-Ait-27/pdf/ai-thinker-radar-module-rd-03-datasheet.pdf>

## Sensor topics on lamaPLC

| Page  | Date             | Tags  |
|---|------------------|---|
| <ul style="list-style-type: none"> <li>• <a href="#">lamaPLC project: Arduino - OLED SH1106 with AHT20/BMP280 Sensor</a></li> </ul> | 2026/04/23 21:51 | <a href="#">bmp280</a> , <a href="#">aht20</a> , <a href="#">temperature</a> , <a href="#">humidity</a> , <a href="#">pressure</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">oled</a> , <a href="#">sh1106</a> , <a href="#">arduino code</a>                      |
| <ul style="list-style-type: none"> <li>• <a href="#">lamaPLC project: Arduino - Vibration sensors</a></li> </ul>                    | 2026/04/15 17:21 | <a href="#">vibration</a> , <a href="#">sensor</a> , <a href="#">piezoelectric</a> , <a href="#">mems</a> , <a href="#">eddy-current</a> , <a href="#">electrodynamic</a> , <a href="#">gxfm0459</a> , <a href="#">ldtm-028k</a> , <a href="#">arduino</a> , <a href="#">arduino code</a> |

|   |                     |   |
|---|---------------------|---|
| • lamaPLC project: Digitales Potentiometer Board Moduls   | 2026/04/11<br>18:29 | sensor, module, arduino code, renesas, x9c series, x9c102, x9c103, x9c104, x9c503, xdcpl, digitally controlled potentiometer                        |
| • lamaPLC project: Sension SCD CO <sup>2</sup> measurement module   | 2026/04/15<br>19:34 | scd30, scd40, scd41, iaq, ndir, sensor, i2c, arduino code   |
| • lamaPLC: A0221AU / A02YYUW Waterproof Ultrasonic Distance Sensor with UART communication  | 2026/04/23<br>21:52 | a0221au, a02yyuw, waterproof, ultrasonic, distance, sensor, uart, ip67, serial, sen0311, dfrobot  |
| • LamaPLC: AHT10 Modul  | 2026/03/22<br>03:14 | communication, i2c, temperature, humidity, sensor, aht, aht 10, modul   |
| • LamaPLC: AHT20 / BMP280 Modul   | 2026/04/23<br>21:52 | bmp280, aht20, adafruit, temperature, humidity, pressure, sensor, arduino, code, i2c  |
| • LamaPLC: Allegro ACS758 Hall-effect linear current sensors  | 2026/04/23<br>21:52 | cjmdu, cjmdu-758, acs758, acs758lcb-050b, acs758lcb-100b, acs758kcb-150b, acs758ecb-200b, hall-effect, current, sensor, analog, arduino, code       |
| • LamaPLC: APDS - Avago ALS and proximity detection sensors with I <sup>2</sup> C communication                                     | 2026/04/23<br>21:52 | avago, apds-9900, apds-9930, apds-9960, als, proximity, detection, gesture recognition, gesture, i2c, communication, sensor, arduino, code          |
| • lamaPLC: AS5600 Magnetic Induction Angle Measurement Sensor Module  | 2026/03/28<br>23:50 | communication, i2c, as5600, as-5600, magnetic, induction, angle, sensor   |
| • LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I <sup>2</sup> C communication                                  | 2026/04/23<br>21:52 | bme280, bme680, bmp180, bmp280, hw-611, hw611, bosch, temperature, humidity, pressure, sensor, arduino, i2c, communication, cjmdu                   |
| • LamaPLC: BQ25570 / CJMCU-2557 - Texas Instruments nano-power management IC and module   | 2026/04/23<br>21:52 | bq25570, sensor, texas instruments, nano-power management, dc-dc boost charger, mppt, solar, thermoelectric, piezoelectric                          |
| • LamaPLC: CJMCU-219/INA-219 breakout board/IC with I <sup>2</sup> C communication  | 2026/04/23<br>21:52 | cjmdu-219, ina-219, ina219, breakout board, i2c, communication, sensor, voltage, current, arduino, code, cjmdu                                      |
| • LamaPLC: CJMCU-3216 / AP-3216 integrated digital ambient light and proximity sensor module/IC with I <sup>2</sup> C communication | 2026/04/23<br>21:52 | cjmdu-3216, cjmdu, ap-3216, ap3216, ambient light, proximity, sensor, arduino, code, i2c, communication   |
| • LamaPLC: CJMCU-3901/PMW-3901 compact optical flow sensor module/IC by PixArt with SPI communication                               | 2026/04/23<br>21:52 | cjmdu-3901, cjmdu, pmw3901, pmw-3901, optical flow, sensor, pixart, spi, communication, arduino, code, pmw3901mb-txqt                               |
| • LamaPLC: CJMCU-6701: Biosensor for measuring Galvanic Skin Response (GSR) with SPI communication                                  | 2026/04/23<br>21:52 | cjmdu, cjmdu-6701, acs758, acs-758, galvanic skin response, gsr, electrodermal activity, eda, spi, communication, arduino, code, sensor, healthcare |

- [LamaPLC: CJMCU-6814 combined gas sensor module for CO, NO<sub>2</sub>, NH<sub>3</sub>](#) 2026/04/23 21:52 [analog, cjmcu, cjmcu-6814, mics6814, mics-6814, sensor, arduino, code, carbon monoxide, co, ammonia, nh<sub>3</sub>, nitrogen dioxide, no<sub>2</sub>](#)
- [lamaPLC: CJMCU-811 CCS811 Gas Sensor \(VOCs TVOC CO<sub>2</sub>\)](#) 2026/03/22 00:08 [cjmcu-811, ccs811, gas, sensor, vocs, tvoc, eco2, co2, arduino, air quality metal oxide, mox, i2c](#)
- [LamaPLC: CJMCU-8221 Analog Devices Precision instrumentation amplifier module](#) 2026/04/23 21:52 [cjmcu-8221, ad8221ar, analog devices, amplifier, sensor, cjmcu](#)
- [LamaPLC: D6T Omron Non-Contact Thermal Sensors with I<sup>2</sup>C communication](#) 2026/04/23 21:52 [d6t, d6t-32l, d6t-44l, d6t-8l, d6t-1a, omron, non-contact, thermal, sensor, i2c, arduino, code](#)
- [LamaPLC: DHT Temperature /Humidity sensors with 1-wire / I<sup>2</sup>C communication](#) 2026/04/23 21:52 [dht11, dht20, dht22, temperature, humidity, pressure, sensor, 1-wire, arduino, code](#)
- [LamaPLC: DPS Infineon Temperature/Pressure sensors with I2C communication](#) 2026/04/23 21:52 [dps310, infineon, temperature, pressure, sensor, arduino, i2c, communication, code](#)
- [lamaPLC: DS18B20 1-Wire Digital Thermometer](#) 2026/04/23 21:52 [ds18b20, sensor, 1-wire, communication, arduino, thermometer, parasitic mode](#)
- [lamaPLC: Energy, power, current, and voltage](#) 2025/05/31 23:32 [i2c, i c, communication, arduino, energy, power, current, sensor, ina226](#)
- [LamaPLC: ENS ScioSense Multi-gas sensors with I<sup>2</sup>C communication](#) 2026/04/23 21:52 [ens160, sciosense, gas-quality, i2c, communication, sensor, arduino, code, eco<sub>2</sub>, tvoc, aqi, indoor air quality, iaq, co<sub>2</sub>, voc](#)
- [lamaPLC: ENS160 + AHT21 Air Quality Sensor - CO, ECO, TVOC, Temp & Humidity Module](#) 2026/04/23 21:52 [arduino, ens160, aht21, air quality, sensor, co, eco, tvoc, module, aqi](#)
- [LamaPLC: Gas sensors](#) 2023/07/01 17:29 [gas, sensor, i2c, onewire, communication, mq-3, mq-4, mq-5, mq-6, mq-7, mq-8, mq-9, mq-135, gm-102b, gm-302b, gm-502b, gm-702b, alcohol, ch4, natural gas, smoke, lng, co, co2, lpg, h2, iso-butane, nox, nh3, benzene, town gas, formaldehyde, propane, humidity, temperature, voc, grv gas sens v2](#)
- [LamaPLC: GM MEMS Gas-sensors](#) 2026/04/23 21:52 [gm-102b, gm-302b, gm-502b, gm-702b, mems, gas-quality, sensor, arduino, code, nitrogen dioxide, no<sub>2</sub>, volatile organic compounds, voc, carbon monoxide, co, ethyl alcohol, c<sub>2</sub>h<sub>5</sub>sch, formaldehyde, ch<sub>2</sub>o, alcohol, c<sub>2</sub>h<sub>5</sub>oh](#)
- [lamaPLC: GY-511 6DOF sensor module](#) 2026/03/22 01:44 [stmicroelectronics, lsm303dlhc, i2c, lsm303, sensor, gy-511, 6dof, pololu, module, arduino](#)
- [LamaPLC: HC-SR04 Ultrasonic Sensor Module](#) 2026/04/23 21:52 [hc-sr04, ultrasonic, sensor, arduino, code](#)

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|---|---------------------|--|
| • LamaPLC: HDC Texas Instruments Temperature/humidity sensors with I <sup>2</sup> C communication | 2026/04/23<br>21:52 | sht21, htu21, si7021, gy-21, gy-213v, hdc1080, gy-213v-hdc1080, cjmcu, cjmcu-1080, texas instruments, temperature, humidity, sensor, i2c, communication, arduino, code   |
| • LamaPLC: HTU TE Connectivity temperature/humidity sensors with I <sup>2</sup> C communication   | 2026/04/23<br>21:52 | htu, htu31d, htu21d, htu20d, sht20, htu20, sht21, htu21, si7021, gy-21, gy-213v, hdc1080, si702, gy-20, sht31, htu31, si7031, gy-31, te connectivity, temperature, humidity, i2c, communication, sensor, arduino, code |
| • LamaPLC: HX711 24-bit analog-to-digital converter (ADC)   | 2026/04/11<br>18:28 | hx711, hx-711, analog-to-digital, adc, converter, load cell, wheatstone bridge, weight, sensor, communication, arduino, code   |
| • lamaPLC: INA modules with Arduino libraries   | 2026/04/11<br>19:54 | i2c, i c, communication, arduino, energy, power, current, monitor, sensor, ina219, gy-219, ina226, gy-216, ina228, gy-228, ina237, ina238, ina260, ina3221, ina  |
| • lamaPLC: INA226 - current/voltage/power monitor with I <sup>2</sup> C communication             | 2026/04/23<br>21:52 | i2c, i c, communication, arduino, energy, power, current, monitor, sensor, ina226, ina219, ina   |
| • lamaPLC: LTC3588 - Nanopower energy harvesting power supply IC                                  | 2026/04/23<br>21:52 | communication, arduino, sensor, energy harvesting, energy, ambient power   |
| • LamaPLC: M01 - V0.4 Laser ranging sensor with UART communication                                | 2026/04/23<br>21:52 | distance measurement, laser, distance, sensor, m01   |
| • LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module                                       | 2026/04/23<br>21:52 | max30102, max30100, heart rate click, sensor, communication, i2c, arduino, code  |
| • lamaPLC: Max31865 RTD to Digital Converter - PT100/PT1000 Platine                               | 2026/04/23<br>21:52 | max31865, rtd, pt 100, pt 1000, temperature, spi, platinum, arduino, code, sensor, adafruit  |
| • LamaPLC: MAX4466/MAX9814: Low-noise Microphone Preamplifiers                                    | 2026/04/23<br>21:52 | audio, microphone, analogue audio, max4466, max9814, max 4466, max 9814, agc, preamplifiers, sensor, arduino, code   |
| • LamaPLC: MH-Z19 series of NDIR CO <sub>2</sub> sensors  | 2026/04/23<br>21:52 | mh-z19, mh-z19d, mh-z19c, mh-z19b, mh-z19e, ndir, co <sub>2</sub> , sensor, winsen, uart, pwm, communication, non-dispersive infrared, infrared, ir, temperature, arduino, code, tasmota                               |
| • lamaPLC: MPU-6050 (HW-123, GY-521) 6-axis MotionTracking device                                 | 2026/03/22<br>03:13 | mpu-6050, hw-123, gy-521, 6-axis motiontracking, dmp, temperature, sensor, mems, arduino code, arduino, accelerometer, gyroscope, tilt   |

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|--|---------------------|---|
| • <a href="#">LamaPLC: MQ Winsen Gas-sensors</a>   | 2026/04/23<br>21:52 | <a href="#">mq</a> , <a href="#">mq-2</a> , <a href="#">mq-3</a> , <a href="#">mq-4</a> , <a href="#">mq-5</a> , <a href="#">mq-6</a> , <a href="#">mq-7</a> , <a href="#">mq-8</a> , <a href="#">mq-9</a> , <a href="#">mq-131</a> , <a href="#">mq-135</a> , <a href="#">mq-137</a> , <a href="#">winsen</a> , <a href="#">gas-sensor</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a> , <a href="#">alcohol</a> , <a href="#">c2h5oh</a> , <a href="#">benzine gas</a> , <a href="#">smoke</a> , <a href="#">lpg</a> , <a href="#">propane</a> , <a href="#">c3h8</a> , <a href="#">hydrogen</a> , <a href="#">h2</a> , <a href="#">methane</a> , <a href="#">ch4</a> , <a href="#">iso-butane</a> , <a href="#">town gas</a> , <a href="#">ammonia</a> , <a href="#">nh3</a> |
| • <a href="#">LamaPLC: PIR sensors</a>   | 2026/04/23<br>21:52 | <a href="#">hc-sr501</a> , <a href="#">hc-sr505</a> , <a href="#">am-312</a> , <a href="#">ekmb</a> , <a href="#">ekmc</a> , <a href="#">pir</a> , <a href="#">motion</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>   |
| • <a href="#">LamaPLC: Pixart PAJ7620U2 Gesture recognition sensors/module with I<sup>2</sup>C communication</a>                   | 2026/04/23<br>21:52 | <a href="#">paj7620u2</a> , <a href="#">gy-paj7620</a> , <a href="#">pixart</a> , <a href="#">gesture recognition</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>   |
| • <a href="#">lamaPLC: PT100 / PT1000</a>  | 2025/09/23<br>18:59 | <a href="#">pt100</a> , <a href="#">pt1000</a> , <a href="#">temperature</a> , <a href="#">sensor</a> , <a href="#">platine</a> , <a href="#">rtd</a>   |
| • <a href="#">lamaPLC: PTA8C04 4-channel PT100 Modbus Modul</a>  | 2026/02/14<br>18:42 | <a href="#">pta8c04</a> , <a href="#">sensor</a> , <a href="#">modbus</a> , <a href="#">rtu</a> , <a href="#">rs-485</a> , <a href="#">communication</a> , <a href="#">platine</a> , <a href="#">um72</a>   |
| • <a href="#">LamaPLC: RCWL - Microwave radar sensor</a>   | 2026/04/23<br>21:52 | <a href="#">rcwl-0516</a> , <a href="#">rcwl</a> , <a href="#">microwave</a> , <a href="#">radar</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>  |
| • <a href="#">lamaPLC: RD-xx - Ai-Thinker Radar Module with UART communication</a>   | 2026/04/23<br>21:52 | <a href="#">radar</a> , <a href="#">s3km1110</a> , <a href="#">fmcw</a> , <a href="#">rd-01</a> , <a href="#">rd-03</a> , <a href="#">rd-03d</a> , <a href="#">ai-thinker</a> , <a href="#">k-band</a> , <a href="#">24 ghz</a> , <a href="#">sensor</a> , <a href="#">distance</a> , <a href="#">micro-movements</a>   |
| • <a href="#">LamaPLC: SGP Sensirion TVOC/VOC sensors with I<sup>2</sup>C communication</a>  | 2026/04/15<br>19:41 | <a href="#">sgp30</a> , <a href="#">sgp40</a> , <a href="#">sgp41</a> , <a href="#">sensirion</a> , <a href="#">gas-sensor</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a> , <a href="#">eco2</a> , <a href="#">voc</a> , <a href="#">tvoc</a> , <a href="#">indoor air quality</a> , <a href="#">iaq</a> , <a href="#">nox</a> , <a href="#">hydrogen</a>  |
| • <a href="#">LamaPLC: SHT Sensirion Temperature/humidity sensor with I<sup>2</sup>C communication</a>                             | 2026/04/23<br>21:52 | <a href="#">sht20</a> , <a href="#">sht21</a> , <a href="#">sht25</a> , <a href="#">sht30</a> , <a href="#">sht31</a> , <a href="#">sht35</a> , <a href="#">sht40</a> , <a href="#">gy21</a> , <a href="#">temperature</a> , <a href="#">humidity</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>   |
| • <a href="#">LamaPLC: Texas Instruments ADCs: Delta-sigma multi-channel Analog Converters with SPI communication</a>              | 2026/04/23<br>21:52 | <a href="#">ads111x</a> , <a href="#">ads12xx</a> , <a href="#">delta-sigma</a> , <a href="#">converter</a> , <a href="#">texas instruments</a> , <a href="#">adc</a> , <a href="#">spi</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a> , <a href="#">ads1110</a> , <a href="#">ads1112</a> , <a href="#">ads1113</a> , <a href="#">ads1114</a> , <a href="#">ads1115</a> , <a href="#">ads1118</a> , <a href="#">ads1119</a> , <a href="#">ads1220</a> , <a href="#">ads1232</a> , <a href="#">ads1234</a> , <a href="#">ads1256</a> , <a href="#">ads1261</a> , <a href="#">ads1263</a> , <a href="#">multi channel</a>   |
| • <a href="#">LamaPLC: TOFnnnC STMicroelectronics Time-of-Flight (ToF) sensors with I<sup>2</sup>C communication</a>               | 2026/04/23<br>21:52 | <a href="#">tof050c</a> , <a href="#">vl6180</a> , <a href="#">tof200c</a> , <a href="#">vl53l0x</a> , <a href="#">tof400c</a> , <a href="#">vl53l1x</a> , <a href="#">stmicroelectronics</a> , <a href="#">time-of-flight</a> , <a href="#">tof</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>  |
| • <a href="#">LamaPLC: UICPAL Temp.humi.sensor</a>   | 2023/06/25<br>00:43 | <a href="#">simatic</a> , <a href="#">s7</a> , <a href="#">modbus</a> , <a href="#">communication</a> , <a href="#">temperature</a> , <a href="#">humidity</a> , <a href="#">sensor</a>   |
| • <a href="#">LamaPLC: VL53Lnn STMicroelectronics time-of-flight (ToF) laser-ranging sensors with I<sup>2</sup>C communication</a> | 2026/04/23<br>21:52 | <a href="#">vl53l0x</a> , <a href="#">vl53l1x</a> , <a href="#">vl53l0 1xv2</a> , <a href="#">gy-530</a> , <a href="#">time-of-flight</a> , <a href="#">tof</a> , <a href="#">laser-ranging</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>   |
| • <a href="#">LamaPLC: VL6180X STMicroelectronics Time-of-Flight (ToF) sensor with I<sup>2</sup>C communication</a>                | 2026/04/23<br>21:52 | <a href="#">vl6180x</a> , <a href="#">stmicroelectronics</a> , <a href="#">time-of-flight</a> , <a href="#">tof</a> , <a href="#">i2c</a> , <a href="#">communication</a> , <a href="#">sensor</a> , <a href="#">arduino</a> , <a href="#">code</a>   |
| • <a href="#">LamaPLC: Waveshare TOF Laser Range Sensor with UART / I<sup>2</sup>C communication</a>                               | 2026/04/23<br>21:52 | <a href="#">distance measurement</a> , <a href="#">laser</a> , <a href="#">range</a> , <a href="#">sensor</a> , <a href="#">tof</a> , <a href="#">waveshare</a>   |

- [lamaPLC: YR-3180 - Weight sensor module with UART or Modbus communication](#) 2026/02/15 00:00 [communication, modbus, rtu, sensor, weight, yr-3180, hx710b, arduino, ttl, rs-485](#)
- [Magnetic angle sensors](#) 2026/03/05 21:19 [magnetic angle sensor, magnetic flux, sensor, spi, i2c, pwm, communication, modul, as5047p, as5600, mt6701, mt6816, mt6835, tle5012b, amr, gmr, tmr, anisotropic magnetoresistive](#)
- [NT18B07: 7 Kanal RS485 Temperatur Sensor with Modbus RTU](#) 2026/02/14 18:49 [nt18b07, sensor, modbus, rtu, rs-485, communication, platine](#)
- [PT100 / PT1000 sensors](#) 2026/04/23 21:52 [rtd, pt100, pt1000, sensor, temperature](#)
- [Radar Module RD-xx](#) 2026/04/23 21:52 [radar, s3km1110, fmcw, rd-03, k-band, 24 ghz, sensor, distance, micro-movements](#)

[radar, S3KM1110, FMCW, Rd-03, K-band, 24 GHz, sensor, distance, micro-movements](#)

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