

## EOS420 LEVEL SENSOR DE



The EOS420 series offers high-performance, wireless IoT level measurement based on external 4–20 mA sensors, such as hydrostatic level probes. It enables reliable measurements of liquids—even under demanding conditions—and is ideal for continuous level monitoring in tanks, containers, and shafts.

The robust M12 connector allows for the simple and secure integration of a wide variety of industrial 4–20 mA sensors.

Thanks to its low-profile design, the system is ideally suited for use on IBC tanks. The optional integrated 1.5-inch thread enables quick and easy installation without additional adapters.

In addition to level measurement, the EOS420 series offers integrated GPS-based location tracking. Combined with high-performance antenna technology, this enables exceptionally stable and long-range wireless communication.

The rugged housing is IP69K-rated and thus optimally designed for harsh industrial and outdoor applications. For maximum flexibility, the device features an injection-molded

SMA connector as well as an M12 connector for connecting external sensors.

With support for mioty®, NB-IoT, LoRaWAN®, and LTE-CAT-M1, as well as flexibly configurable measurement and transmission intervals, the EOS series is the ideal solution for smart tank monitoring, industrial applications, and digital inventory monitoring.

## VERSIONS

| Item Code                 | Battery | Model           | Available | Configuration |
|---------------------------|---------|-----------------|-----------|---------------|
| S-EOS-LOEU-420-F          | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-MIOTY-420-F         | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-NBM1-420-F          | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-LOEU-420-F-SMA      | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-MIOTY-420-F-SMA     | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-NBM1-420-F-SMA      | 3xAA    | Flat            | ✓         | BLE           |
| S-EOS-LOEU-420-F-SMA-M12  | 3xAA    | Flat            | ✗         | BLE           |
| S-EOS-MIOTY-420-F-SMA-M12 | 3xAA    | Flat            | ✗         | BLE           |
| S-EOS-NBM1-420-F-SMA-M12  | 3xAA    | Flat            | ✗         | BLE           |
| S-EOS-LOEU-420-T          | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-MIOTY-420-T         | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-NBM1-420-T          | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-LOEU-420-T-SMA      | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-MIOTY-420-T-SMA     | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-NBM1-420-T-SMA      | 3xAA    | 1.5-inch thread | ✓         | BLE           |
| S-EOS-LOEU-420-T-SMA-M12  | 3xAA    | 1.5-inch thread | ✗         | BLE           |
| S-EOS-MIOTY-420-T-SMA-M12 | 3xAA    | 1.5-inch thread | ✗         | BLE           |
| S-EOS-NBM1-420-T-SMA-M12  | 3xAA    | 1.5-inch thread | ✗         | BLE           |

**✗: Upon request**

| Item Code                   | Battery | Model           | Available | Configurat<br>ion<br>Configurati<br>on |
|-----------------------------|---------|-----------------|-----------|----------------------------------------|
| S-EOS2C-LOEU-420-F          | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-MIOTY-420-F         | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-NBM1-420-F          | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-LOEU-420-F-SMA      | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-MIOTY-420-F-SMA     | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-NBM1-420-F-SMA      | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-LOEU-420-F-SMA-M12  | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-MIOTY-420-F-SMA-M12 | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-NBM1-420-F-SMA-M12  | 2xC     | Flat            | X         | BLE                                    |
| S-EOS2C-LOEU-420-T          | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-MIOTY-420-T         | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-NBM1-420-T          | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-LOEU-420-T-SMA      | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-MIOTY-420-T-SMA     | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-NBM1-420-T-SMA      | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-LOEU-420-T-SMA-M12  | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-MIOTY-420-T-SMA-M12 | 2xC     | 1.5-inch thread | X         | BLE                                    |
| S-EOS2C-NBM1-420-T-SMA-M12  | 2xC     | 1.5-inch thread | X         | BLE                                    |

**X: Upon request**

| Designation  | Description                                                        |
|--------------|--------------------------------------------------------------------|
| <b>LOEU</b>  | LoRaWAN EU                                                         |
| <b>MIOTY</b> | mioty EU                                                           |
| <b>NBM1</b>  | NB-IoT, LTE-CAT-M1                                                 |
| <b>420</b>   | 4–20 mA                                                            |
| <b>SMA</b>   | Subminiature Version A                                             |
| <b>M12</b>   | M12 connector                                                      |
| <b>T</b>     | Thread, 1.5-inch male thread, cylindrical (not tapered), Version B |
| <b>F</b>     | Flat design, without thread                                        |
| <b>EOS2C</b> | Version with two C batteries                                       |
| <b>EOS</b>   | Version with three AA LISOCL2 cells                                |

## GENERAL FEATURES

| FEATURE                                | VALUE                                                                                                                                                                                                        | UNIT |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Dimensions (D x H)                     | 128x57 (internal antenna with thread)                                                                                                                                                                        | mm   |
| Weight                                 | 160                                                                                                                                                                                                          | g    |
| Operating temperature                  | -20 to 80                                                                                                                                                                                                    | °C   |
| Storage temperature (recommended)      | 15 to 25                                                                                                                                                                                                     | °C   |
| Relative humidity during Operation     | 5 to 99                                                                                                                                                                                                      | %    |
| IP rating                              | IP 69k                                                                                                                                                                                                       |      |
| Sensor range                           | 4–20                                                                                                                                                                                                         | mA   |
| Traffic Light Function/Visual Feedback | LED                                                                                                                                                                                                          |      |
| Acoustic alarm function                | -                                                                                                                                                                                                            |      |
| Provisioning and Configuration         | BLE                                                                                                                                                                                                          |      |
| Material                               | POCAN4225B PBT-GF-20                                                                                                                                                                                         |      |
| BLE Antenna                            | Integrated                                                                                                                                                                                                   |      |
| RF Antenna                             | <ul style="list-style-type: none"> <li>Integrated for all versions</li> <li>External with SMA connector for SMA versions</li> <li>Auto Antenna Selector, depending on the connected configuration</li> </ul> |      |
| Accelerometer                          | Shock detection and activity tracking                                                                                                                                                                        |      |
| Batteries                              | Replaceable                                                                                                                                                                                                  |      |
| Primary cell type                      | <ul style="list-style-type: none"> <li>S-EOS-XXXX: 3 x AA LiSOCL2 (see LS14500 from SAFT)</li> <li>S-EOS2C-XXXX: 2 x C LiMnO2 (equivalent to SAFT LM26500)</li> </ul>                                        |      |

## CONNECTIVITY AND RF SPECIFICATIONS

| FEATURE                              | VALUE                         | UNIT |
|--------------------------------------|-------------------------------|------|
| RF standards                         |                               |      |
| Frequency<br>LoRaWAN®/mioty® EU      | 868                           | MHz  |
| Cellular frequency                   | Band 8, 20 (900 MHz, 800 MHz) | MHz  |
| Transmit power<br>LoRaWAN®/Mioty® EU | 14                            | dBm  |
| Transmit power NB-IoT                | 23                            | dBm  |
| LoRa® MAC layer version              | 1.0.4                         |      |

## LOCATION OF LORAWAN SENSORS

| FEATURE                                 | VALUE                                                                                                         | UNIT |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------|------|
| Wi-Fi SSID Scan                         | Up to 6 MAC addresses on port 199                                                                             |      |
| Wi-Fi SSID Scan Frequency               | 2.4                                                                                                           | GHz  |
| Wi-Fi SSID Scan Accuracy                | 6 to 50                                                                                                       | m    |
| GNSS                                    | GNSS <b>Scan</b> with GPS and BeiDou                                                                          |      |
| GNSS Accuracy                           | 10 to 100                                                                                                     | m    |
| Antenna                                 | Integrated                                                                                                    |      |
| Chipset                                 | LR1110                                                                                                        |      |
| Feature for on-premises indoor tracking | Configurable to transmit up to 5 MAC addresses and RSSI values in the standard uplink payload are transmitted |      |
| Tracking in LoRaWAN                     | Network-dependent                                                                                             |      |
| Tracking in Motion                      | Yes                                                                                                           |      |

## LOCATION TRACKING USING CELLULAR SENSORS

| FEATURE            | VALUE                         | UNIT |
|--------------------|-------------------------------|------|
| GNSS               | GPS, Galileo, GLONASS, BeiDou |      |
| GNSS Accuracy      | 5 to 100                      | m    |
| Antenna            | Integrated, patch antenna     |      |
| Cell Locate        | Supported                     |      |
| Tracking in Motion | Yes                           |      |

## LOCATION USING MIOTY SENSORS

| FEATURE       | VALUE                         | UNIT |
|---------------|-------------------------------|------|
| GNSS          | GPS, Galileo, GLONASS, BeiDou |      |
| GNSS Accuracy | 5 to 100                      | m    |
| Antenna       | Integrated, patch antenna     |      |
| Cell Locate   | Supported                     |      |

|                    |     |
|--------------------|-----|
| Tracking in Motion | Yes |
|--------------------|-----|

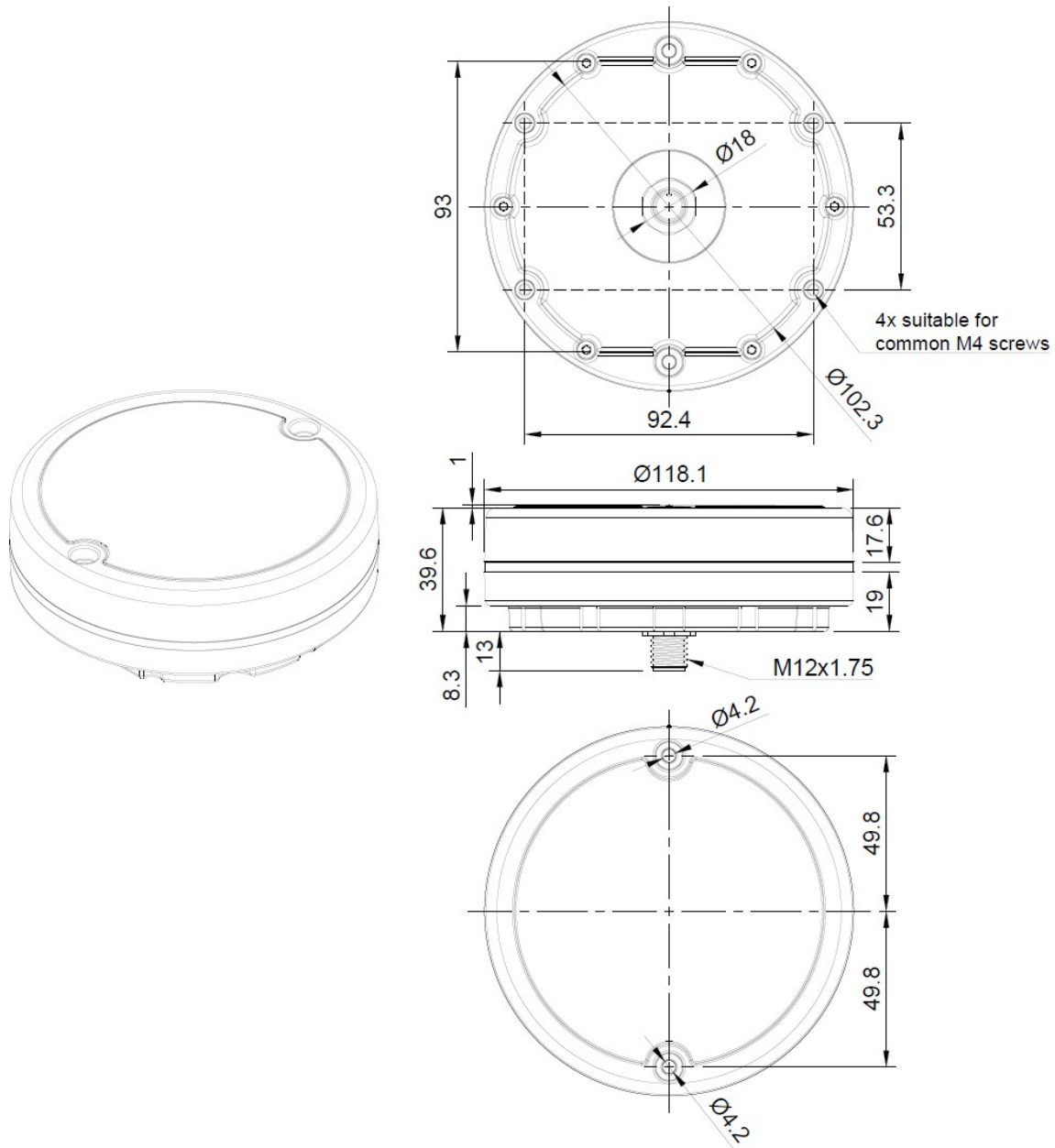
## SENSOR SPECIFICATIONS: TEMPERATURE FOR -ACC SENSORS

| Characteristic               | VALUE      | UNIT |
|------------------------------|------------|------|
| Temperature Range            | -40 to +85 | °C   |
| Accuracy 0°C to 70°C         | ±0.8       | °C   |
| Accuracy from -40°C to +85°C | ±1.3       | °C   |
| Resolution                   | 1          | °C   |

## TEMPERATURE SENSOR SPECIFICATIONS FOR NON-ACC SENSORS

| Characteristic               | VALUE      | UNIT |
|------------------------------|------------|------|
| Temperature Range            | -30 to +85 | °C   |
| Accuracy 0°C to 70°C         | ±2         | °C   |
| Accuracy from -40°C to +85°C | ±1.5       | °C   |
| Resolution                   | 1          | °C   |

## TECHNICAL DRAWING “FLAT” FLAT VERSION



TECHNICAL DRAWING "THREAD" WITH 1.5-INCH THREAD