

# Display Series

## Description

The ERS Display series of sensors are universal LoRaWAN® indoor climate sensors with a 2.1" E-paper display showing real-time sensor data. Depending on the model, the sensor measures temperature, humidity, light intensity, CO2 level, VOC level, sound level and detects motion. The ERS Display series are battery-powered devices and are designed to be wall-mounted. The sensors are equipped with NFC (Near Field Communication) for easy configuration with an NFC-enabled smartphone.



## Applications

- Indoor environment measuring
- Smart buildings
- Workplace management

## Product features

- LoRaWAN Certified CM
- 2.1 " E-paper display
- Temperature sensor
- Humidity sensor
- Light sensor
- Motion sensor (PIR)
- Occupancy
- CO2-sensor
- VOC-sensor
- Button
- NFC for configuration
- Configuration over the air
- Discrete and minimalistic design
- Traffic Light Indication
- Custom Interface

## Device Specifications

### Mechanical specifications

|                  |                                                                |
|------------------|----------------------------------------------------------------|
| Weight           | 53 - 60 g excluding batteries<br>70 - 95 g including batteries |
| Dimensions       | 76.2 x 76.2 x 22.5 mm                                          |
| Enclosure        | PC + ABS                                                       |
| Protection class | IP20                                                           |

### Operating conditions

|                     |                               |
|---------------------|-------------------------------|
| Temperature         | 0 to 50 °C                    |
| Humidity            | 0 to 85 % RH (non-condensing) |
| Operating Altitude  | 0 – 2000 m                    |
| Pollution Degree    | Degree 2                      |
| Usage Enviroment    | Indoor                        |
| Storage Temperature | -40 – 85 °C                   |

# Display Series

| Device Power Supply   |                                                                     |
|-----------------------|---------------------------------------------------------------------|
| Battery Type          | 2 x 3.6V AA Lithium Batteries                                       |
| Expected Battery Life | <u>Up to</u> 10 years (Depending on configurations and environment) |

| Radio / Wireless                        |                                                                                            |
|-----------------------------------------|--------------------------------------------------------------------------------------------|
| Wireless Technology                     | LoRaWAN <sup>®</sup> 1.0.4<br>Regional Parameters RP002 – RP1.0.3                          |
| Wireless Security                       | LoRaWAN <sup>®</sup> End-to-End encryption (AES-CTR), Data Integrity Protection (AES-CMAC) |
| LoRaWAN Device Type                     | Class A/C (configurable) End-device                                                        |
| Supported LoRaWAN <sup>®</sup> features | OTAA, ABP, ADR, Adaptive Channel Setup                                                     |
| Supported LoRaWAN <sup>®</sup> regions  | EU868, IN865, US915, AU915, AS923, HK923, KR923                                            |
| Link Budget                             | 137 dBm (SF7) to 151 dBm (SF12)                                                            |
| RF Transmit Power                       | Max 14 dBm EIRP                                                                            |

| Device Logging Function |                                                 |
|-------------------------|-------------------------------------------------|
| Sampling Interval       | Configurable via NFC and downlink configuration |
| Data Upload Interval    | Configurable via NFC and downlink configuration |

| Sensor Characteristics |                                                                                                                                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Range      | 0 to 50 °C                                                                                                                            |
| Temperature Resolution | 0.1 °C                                                                                                                                |
| Temperature Accuracy   | Accuracy: $\pm 0.2$ °C                                                                                                                |
| Humidity Range         | 0 – 85 % RH                                                                                                                           |
| Humidity Resolution    | 0.1 % RH                                                                                                                              |
| Humidity Accuracy      | $\pm 2$ % RH at 25 °C                                                                                                                 |
| Light Range            | 4 – 2000 lx                                                                                                                           |
| Light Resolution       | 1 lx                                                                                                                                  |
| Light Accuracy         | $\pm 10$ lx                                                                                                                           |
| CO2 Range              | 400-10000 ppm                                                                                                                         |
| CO2 Resolution         | 1 ppm                                                                                                                                 |
| CO2 Accuracy           | 400-5000 ppm: $\pm 30$ ppm, $\pm 3$ % of reading (15-35 °C, 0-80 % RH)<br>5001-10000 ppm: $\pm 10$ % of reading (15-35 °C, 0-80 % RH) |
| Sound Range (Average)  | 31 – 75 dB SPL                                                                                                                        |
| Sound Range (Peak)     | 59 – 100 dB SPL                                                                                                                       |
| Sound Resolution       | 1 dB                                                                                                                                  |
| Sound Accuracy         | $\pm 5$ dB                                                                                                                            |
| VOC Range              | 0 – 60000 ppb                                                                                                                         |
| VOC Resolution         | 0 ppb – 2008 ppb: 1 ppb<br>2008 ppb – 11110 ppb: 6 ppb<br>11110 ppb – 60000 ppb: 32 ppb                                               |
| VOC Accuracy           | Typ. 15 % of measured value                                                                                                           |

# Display Series

## User Interface

|             |                                                               |
|-------------|---------------------------------------------------------------|
| LED         | Functionality configurable via NFC and downlink configuration |
| App Support | Sensor Settings (Using NFC)                                   |

## Conformity

|      |                       |
|------|-----------------------|
| IC   | ID: 26904-ERSD1       |
| FCC  | ID: 2ANX3-ERSD1       |
| EMC  | 2014/30/EU            |
| RED  | 2014/53/EU            |
| LVD  | 2014/35/EU            |
| RoHS | 2011/65/EU + 2015/863 |
| LoRa | 1.0.4                 |

## Country of origin

|                                |                           |
|--------------------------------|---------------------------|
| Product & Firmware Development | Sweden                    |
| Plastic casing                 | Sweden                    |
| Production                     | Sweden, Latvia, Lithuania |

## Ordering Information

| Art. No.      | Description                     |
|---------------|---------------------------------|
| ERSDLITE-L    | ERS Display Lite LoRa           |
| ERSDCO2LITE-L | ERS Display CO2 Lite LoRa       |
| ERST-L        | ERS Display Touch LoRa          |
| ERSD-L        | ERS Display LoRa                |
| ERSDCO2-L     | ERS Display CO2 LoRa            |
| ERSDSOUND-L   | ERS Display Sound LoRa          |
| ERSDVOC-L     | ERS Display VOC LoRa            |
| ER14505       | AA 3.6V Lithium Battery ER14505 |

# Display Series

## Product Information

| Function             | Art | ERSDLITE-L | ERSDCO2LITE-L | ERST-L | ERSD-L | ERSDCO2-L | ERSDSOUND-L | ERSDVOC-L |
|----------------------|-----|------------|---------------|--------|--------|-----------|-------------|-----------|
| 2.1" E-paper display |     | ×          | ×             | ×      | ×      | ×         | ×           | ×         |
| Temperature          |     | ×          | ×             | ×      | ×      | ×         | ×           | ×         |
| Humidity             |     | ×          | ×             | ×      | ×      | ×         | ×           | ×         |
| Motion (PIR)         |     |            |               |        | ×      | ×         | ×           | ×         |
| CO2                  |     |            | ×             |        |        | ×         |             |           |
| Sound                |     |            |               |        |        |           | ×           |           |
| VOC                  |     |            |               |        |        |           |             | ×         |
| Button               |     |            |               | ×      |        |           |             |           |
| Traffic Light        |     |            |               |        | ×      | ×         | ×           | ×         |
| NFC                  |     | ×          | ×             | ×      | ×      | ×         | ×           | ×         |

## Document Revision History

| Version | Description         | Date       |
|---------|---------------------|------------|
| 1.0     | First version       | 2024-09-06 |
| 2.0     | Product Name update | 2025-03-14 |