

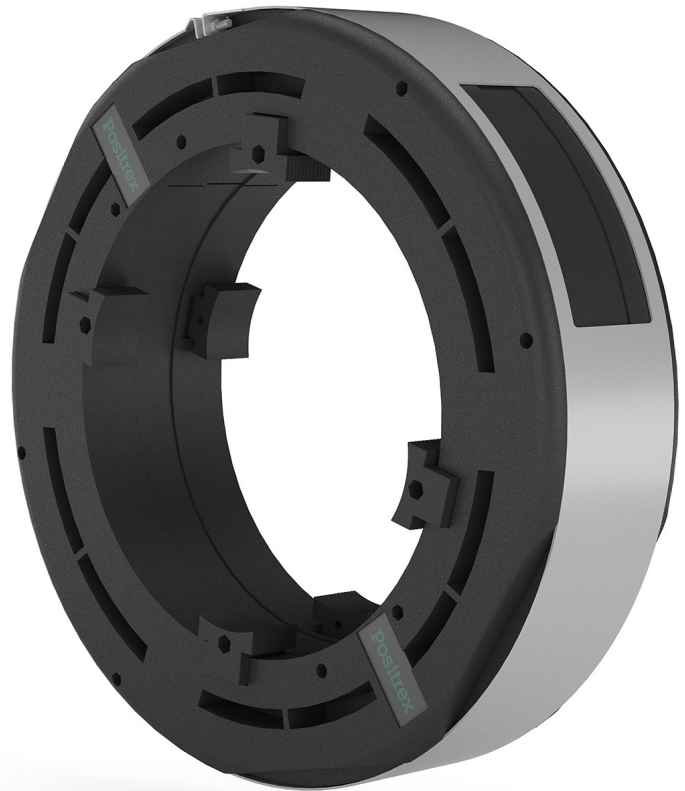
AR1

AxleRing*

PATENTED SELF-CHARGING GPS UNIT FOR TRACKING AND MONITORING OF RAIL CARS

USAGE AND CHARACTERISTICS

- » For railway wagon axles
- » Odometer counted by axle turns
- » Unique unit ID allows axle identification
- » GPS tracking at 10 min interval
- » Self-charging (patented energy harvesting)
- » Simple installation by connection around wagon axle
- » G-shock detection
- » Axle blocking detection
- » BT 5.0 external interface for up to 100 wireless sensors (optionally)
- » NB IoT and Cat M1 connectivity (optionally)



TYPES AVAILABLE*

| TYPE | GSM | BATTERY | RF Interface |
|------------|---------------------|------------------------------|---------------|
| AR 100 202 | 2G | Lilon 7 800 mAh rechargeable | - |
| AR 102 202 | 2G | Lilon 7 800 mAh rechargeable | Bluetooth 5.0 |
| AR 100 002 | 2G/4G NB-IoT/Cat M1 | Lilon 7 800 mAh rechargeable | - |
| AR 102 002 | 2G/4G NB-IoT/Cat M1 | Lilon 7 800 mAh rechargeable | Bluetooth 5.0 |

*for customized solutions - combination of 2G, 4G NB IoT and/or Cat M1 - contact our sales department

ACCESSORIES

| | |
|------------|------------------------------|
| BS 010 390 | BT temperature sensor |
| BS 020 130 | BT robust temperature sensor |
| BS 030 380 | BT access card |
| BS 040 540 | BT door sensor |



Photo from AxleRing installation

* Temporarily available for testing purposes only. For more details please contact our sales representative.

AR1 AxleRing

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TECHNICAL PARAMETERS

| | | | |
|---|--|--|--|
| GSM | 2G | 850/900/1800/1900 MHz | |
| | version 4G NB-IoT/Cat M1 | B1@2100MHz, B3@1800MHz, B8@900MHz, B5@850MHz, B20@800MHz, B28@700 MHz | |
| | version 4G LTE Cat M1 /NB-IoT/ EGPRS | B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28/B39 - for Cat M1 only @LTE 850/900/1800/1900 @EGPRS | |
| | SIM | SIM Chip | |
| | Types of communication | NB-IoT/GPRS to Positrex VPN | |
| | GPRS internet connectivity | Class 12 | |
| | | Static & dynamic IP VPN, UDP protocol | |
| | | 128bit security encryption key | |
| FW upgrade | | | |
| Configuration settings | | | |
| On-line value reading | | | |
| Report memory reading | | | |
| Control | | | |
| GNSS | GPS + GLONASS | 33 tracking channels, 99 acquisition channels, 210 PRN channels | |
| ANTENNAS | GPS, GSM, BT 5.0 | Internal | |
| BATTERIES | Lilon | 7 800 mAh | |
| | Charging | > 40 km/h (25mph) | |
| | Discharging | 5 mAh/day | |
| INTERNAL SENSORS | Hall sensor | Number of turns - exact tacho and speed | |
| | | Blocked axle detection | |
| WIRELESS EXTERNAL SENSOR INTERFACE | Bluetooth low energy 5.0 | Open/Closed sensor | |
| | | G-shock sensor | |
| | | Ambient temperature sensor | |
| INTERNAL MEMORY | Flash 512 kB | Capacity 5000 events or GPS positions | |
| TEMPERATURE | Temp. range | -35°C up to +70°C | |
| SPEED LIMITATIONS | Maximum speed | 180 km/h ; 112 mph | |
| PROTECTION CLASS | IP66 | Waterproof | |
| WEIGHT | | 450 g | |
| DIMENSIONS | Plastic ring (inner diameter/outer diameter x width) | ø195 mm / ø284 mm x 100mm | |
| | Axle diameter | for ø150 mm, ø175 mm, ø191 mm | |
| REQUIRED SPACE | On each side of device | 250 mm | |
| STANDARDS | EMC | EN 50121-3-2 ed.4 EN 61000-6-4:2007+A1:2011 EN 55032:2015 EN 55024:2010 | |
| | LVD | EN 62368-1:2014+A11:2017 | |
| | Climatic testing | EN 50155 EN 60068-2-2 EN 60068-2-1 ed.2 EN 60068-2-30 ed. 2 | |
| | Shock and vibration | EN 61373 ed. 2 | |
| | IP code | EN 60529 | |