

PROD1198

Portable Radio Unit

The Portable Radio Unit (PRU) is designed to solve the problem of short-term visitors requiring CAS functionality to ensure they can safely interact with other site assets equipped with CAS-GPS systems.

A portable CAS-GPS system comprises an in-cab Display/CPU (connected to the vehicle-powered UPS) serving as the CAS Screen/Operator Interface/Event Logger (refer PROD1185) and this PRU magnetically mounted on the roof of the vehicle.



The system is intended to reside in the gatehouse of the mine site. Visitors who require pit access loan the unit for the duration of their stay. When not being used the units are dormant and remain on charge in the gatehouse to replenish internal batteries. Upon issue the system is activated, user(s) are trained, and the system is affixed to the visitor's vehicle.

Features

- *High-performance dual-band, dual-receiver, multi-constellation GNSS receiver with internal antennas with RTK and static heading capabilities*
- *Short-Range Device (SRD) Radio - ordered for specific geographic region*
- *High accuracy IEEE 802.15.4a ToF equipped*
- *IEEE 802.15.1 WPAN equipped*
- *CAN bus pass-through communications*
- *Internal Lithium Phosphate ultra-long-life battery*
- *When linked with a Wabtec CAS-GPS system supports self-test for real-time health monitoring & reporting*
- *Can operate as a stand-alone product for stationary objects or portable CAS systems*

Specifications

Power Supply

| | |
|----------------------|---|
| Input voltage | Charging 11-18V _{DC} |
| Power | Up to 30W whilst charging, typically <2W in operation |

Battery Backup

| | |
|--------------------|--|
| Capacity | 23.7Wh (47.4Wh dual-battery option) extended temp, 3000 cycle, increased safety Lithium Phosphate battery system |
| Charge time | 2.5hrs for moderate cell temperatures (10°C to 50°C). Charge times may increase at extreme cold & hot temperatures |
| Run time | 24 hours minimum (operating time may reduce in sub-zero temperatures) Depends on application configuration |

Vehicle Interface

| | |
|-------------------|--|
| CAN Bus | CAN 2.0, controlled slew rate, 500kbps with programmable termination |
| Connectors | 2 x 6-pin MIL-C-5015 compatible connectors – refer connection table |

GNSS

Ultra-High Precision, dual-band, dual receiver, multi-constellation, RTK, static heading

| | |
|--------------------|--------|
| Rx Channels | 448 |
| GPS | L1, L2 |
| GLONASS | L1, L2 |
| Galileo | E1, E5 |
| BeiDou | B1, B2 |
| QZSS | L1, L2 |
| SBAS | L1 |

| | |
|---|------------------------|
| Horizontal Accuracy (CEP₅₀) | Standalone 1.0m |
| | SBAS 0.5m |
| | DGNSS 0.3m |
| | RTK 0.5cm |

PVT Update rate 100Hz/ 50Hz with heading (all constellations)

Static Heading (1σ) 1° (standalone)

Enhanced robustness anti-jamming and monitoring against narrow and wideband interference
 advanced scintillation mitigation
 a posteriori multipath estimator for code and phase multipath mitigation
 superior tracking robustness under heavy mechanical shocks or vibrations

Optional RF Sub Systems

Time of Flight (ToF) ranging +10dBm max EIRP
 2.4GHz based
 IEEE802.15.4a
 Range limited to 250m line of sight (environment-dependent)
 Accuracy up to ±2m (depends on mode)
 Mode 22MHz or 80MHz B/W

IEEE 802.15.1 2.4GHz PAN
 Up to +14dBm EIRP

Size 412mm wide x 160mm deep x 135mm high

Weight 3.5kg

IP Rating IP66

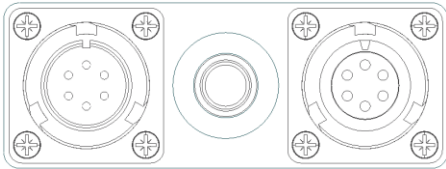
Vibration/shock IEC60068

Operating Humidity 5% to 95% RH

Storage Temp. -20°C to +70°C

Operating Temp. -20°C to +70°C


Wiring Reference

| Cable Pin Outs LHS | | Connectors | Cable Pin Outs RHS | |
|--------------------|--------|--|--------------------|--------|
| Pin | Signal | | Pin | Signal |
| A | +V |  | A | +V |
| B | 0V | | B | 0V |
| C | AUX- | | C | AUX- |
| D | AUX+ | | D | AUX+ |
| E | CANL | | E | CANL |
| F | CANH | | F | CANH |

V2V Radio Reference

| Country | PROD1198 | Nominal Operating Frequency (MHz) | Power (dBm) | Band fl (MHz) | Band fh (MHz) |
|------------------|----------|-----------------------------------|-------------|---------------|---------------|
| EUROPE | -EUR | 869.525 | 20 | 869.40 | 869.65 |
| GABON | -GAB | 869.525 | 20 | 869.40 | 869.65 |
| GHANA | -GHA | 869.525 | 20 | 869.40 | 869.65 |
| MOZAMBIQUE | -MOZ | 869.525 | 20 | 869.40 | 869.65 |
| NEW CALEDONIA | -NCL | 869.525 | 20 | 869.40 | 869.65 |
| SENEGAL | -SEN | 869.525 | 20 | 869.40 | 869.65 |
| SOUTH AFRICA | -ZAF | 869.525 | 20 | 869.40 | 869.65 |
| CANADA | -CAN | 920.00 | 20 | 902.00 | 928.00 |
| MEXICO | -MEX | 920.00 | 20 | 902.00 | 928.00 |
| PERU | -PER | 920.00 | 20 | 902.00 | 928.00 |
| AMERICA | -USA | 920.00 | 20 | 902.00 | 928.00 |
| ARGENTINA | -ARG | 920.00 | 20 | 915.00 | 928.00 |
| AUSTRALIA | -AUS | 920.00 | 20 | 915.00 | 928.00 |
| BRAZIL | -BRA | 920.00 | 20 | 915.00 | 928.00 |
| CHILE | -CHL | 920.00 | 20 | 915.00 | 928.00 |
| COLUMBIA | -COL | 920.00 | 20 | 915.00 | 928.00 |
| PAPUA NEW GUINEA | -PNG | 920.00 | 20 | 915.00 | 928.00 |
| INDIA | -IND | 866.00 | 20 | 865.00 | 867.00 |
| RUSSIA | -RUS | 864.50 | 13 | 864.00 | 865.00 |
| MONGOLIA | -MNG | 921.00 | 20 | 920.00 | 925.00 |
| INDONESIA | -IDN | 921.00 | 20 | 920.00 | 923.00 |

Part Number Reference

| | |
|---|--|
| PROD1198-abcde-COUNTRY | a, b, c, d, e each represent radio module slots which can include: |
| P | Pan (Bluetooth) |
| V | V2V radio, customised to local requirements |
| U | Ultra-high precision GPS |
| T | Time of Flight |
| X | (Empty slot) |
| Example Part Numbers: | |
| PROD1198-PVUTX-AUS | Pan + V2V + Ultra-high-precision GNSS + ToF radios - AUSTRALIA |
| PROD1198-XVUXX-ZAF | V2V + Ultra-high-precision GNSS – SOUTH AFRICA |
| Charger: | |
| PROD0653 | 12V CHARGER UNIT (DUAL SOCKET) |
| PROD1208 | MODULAR CHARGER POWER SUPPLY CABINET |
| PROD1209 | MODULAR CHARGING PANEL 4 POSITION |
|  | |
| <p>→ Note each PROD1208 can supply 4 x PROD1209 producing up to 16 charging positions</p> | |

Contact

| | |
|------------|--|
| Web | www.wabteccorp.com |
|------------|--|

Document Revision History

| | | |
|---|------------|---|
| A | 08/05/2020 | Created |
| B | 04/02/2021 | Charging options clarified, latest product images added, part numbering system clarified. |
| C | 29/06/2021 | Maximum ToF power reduced to +10dBm, PAN power reduced to +14dBm |