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 (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.
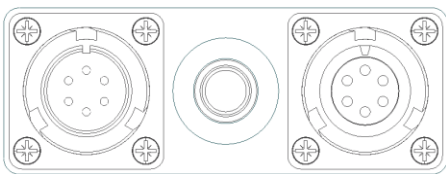
Features
- *High-performance dual-band, dual-receiver, multi-constellation GNSS receiver with internal antennas with RTK and static heading capabilities*
- *Short-Range Device (SRD) Radio - ordered for specific geographic region*
- *High accuracy IEEE 802.15.4a ToF equipped option*
- *IEEE 802.15.1 WPAN equipped option*
- *CAN bus pass-through communications*
- *Optional 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[1]
[1] Except -NB product variants

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 (CEP$_{50}$)	**Standalone** 1.0m **SBAS** 0.5m **DGNSS** 0.3m **RTK** 0.5cm
PVT Update rate	100Hz/ 50Hz with heading (all constellations)
Static Heading (1σ)	5˚ (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

V2V SRD Radio	up to 100mW option; 864.5MHz, 866MHz, 869.525MHz, 902-928MHz (depends on Regulatory Authority Refer V2V radio reference table
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
COLOMBIA	-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)
[ ]	Optional code, NB representing no internal battery
COUNTRY	3-letter code as nominated above (consult Wabtec DMT for others)
Example Part Numbers:	
PROD1198-PVUTX-AUS	Pan + V2V + Ultra-high-precision GNSS + ToF radios - AUSTRALIA
PROD1198-XVUVX-NB-ZAF	V2V (x2) + Ultra-high-precision GNSS, no battery – SOUTH AFRICA
Charger:	
PROD0653	12V CHARGER UNIT (DUAL SOCKET)
PROD1208 ⌐	MODULAR CHARGER POWER SUPPLY CABINET
PROD1209 ⌐	MODULAR CHARGING PANEL 4 POSITION
	→ *Note each PROD1208 can supply 4 x PROD1209 producing up to 16 charging positions*

Contact

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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
D	04/04/2022	-NB variant
E	25/08/2022	Static heading spec