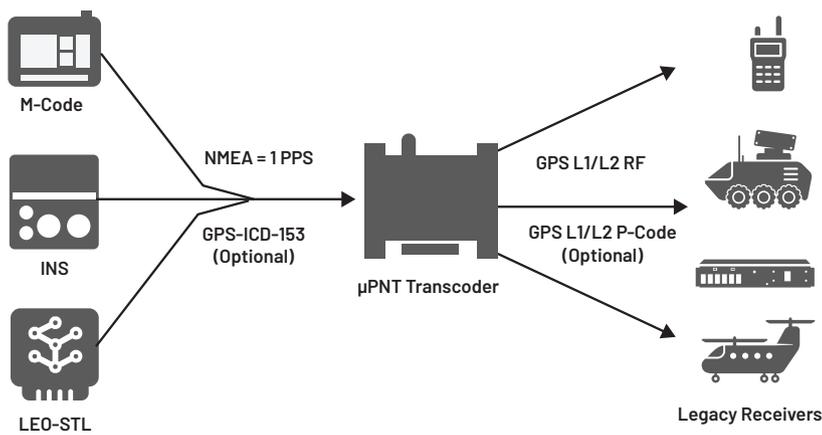


RSR Transcoder 2.0

Synthesizing GPS RF from Common PNT Inputs

The RSR Transcoder™ 2.0 from VIAMI Solutions is a rugged, real-time solution that converts modern Assured PNT inputs such as M-Code, SAASM, INS, and other signals of opportunity into compatible GPS RF signals. Based on a patented methodology, the system includes a full-constellation GPS simulator that outputs standard GPS L1 C/A, L1 P-code, and L2 P-code signals.



2266.900.0226

GNSS Input Sources and GPS Output Destinations

Key Features

- Generates GPS L1 C/A, L1 and L2 P-code RF signals compatible with existing receivers
- External 1PPS input enables time-transfer accuracy better than 5 nanoseconds
- Automatic detection and configuration of BAE Systems (DAGR, MicroGRAM) and u-blox receivers
- Designed for vehicular, airborne, and portable deployments
- Supports covert or lights-out operation for tactical scenarios
- Supports ICD-GPS-153 from military user equipment
- Accepts 100 Hz update rate from external equipment



RSR RF-Transcoder

Typical Specifications

Module Specifications	
<i>RF Output</i>	
Output Frequency	GPS L1(1575.42 MHz), L2 (1227.6 MHz)
Code Type	GPS L1 C/A, L1 and L2 P-code
Power Level	-100 to -120 dBm
Spectral Purity	
In-Band Spurious	< -33 dBc (L1, ± 20 MHz)
Out-of-Band Spurious	< -80 dBm
Harmonics of L1	< -150 dBm
<i>Internal GNSS Receiver</i>	
Monitoring Functions	Background monitoring of RF output power and RF signal quality
<i>External Source Compatibility</i>	
Any source that outputs NMEA	
Direct control of Rockwell Collins GB-GRAM, MicroGRAM SAASM GPS, and u-blox GNSS Receivers	
Oscillator and Timing Specifications	
<i>10 MHz Output</i>	
Signal Type	CMOS, disciplined by external 10 MHz or 1 PPS reference
<i>1 PPS Output</i>	
Signal Type	CMOS, disciplined by external 10 MHz or 1 PPS reference
Accuracy	< 5 ns from external reference
Input/Output Connectors – Applies to Models With and Without Enclosure	
<i>RF Output Connector</i>	
Type	SMA, Female
Signal/Description	Output port for transcoded L1 and L2 signals

Typical Specifications continued

Input/Output Connectors – Applies Only to Models Without Enclosure

RSR Interface Connector

Type	20-Pin Connector
Signal/Description	
1 PPS Input	CMOS 3.3 V, 1 PPS Reference Input from external reference or GNSS
1 PPS Output	+3.3 V GPIO, Timing locked to oscillator
RS-232 In	RS-232 Serial Port RX Interface from external system towards PCBA for UART3. Mutually Exclusive with USB-Serial port. Connect only RS-232 OR USB Serial Port.
RS-232 Out	RS-232 Serial Port TX Interface from PCBA towards external system for UART3. This Port can also be used to update firmware ISP-Mode.
1 PPS Output	+3.3 V GPIO, Timing locked to oscillator
10 MHz Buffer Output	OCXO: 10 MHz buffered output from internal oscillator
OCXO Lock	CMOS 3.3 V, references Internal Oscillator Lock Status

I/O Connectors – Additional Connector on Models with Enclosure

Power DC Input Connector

Type	3-Pin, Male
Signal/Description	Power I/O Locking circular DIN for AC power input and DC output power

I/O Port

Type	Locking circular DIN connector
Signal/Description	
1 PPS Input	CMOS 3.3 V, 1 PPS Reference Input from external reference or GNSS
1 PPS Output	+3.3 V GPIO, Timing locked to oscillator
RS-232 In	RS-232 Serial Port RX Interface from external system towards PCBA for UART3. This Port can also be used to update firmware ISP-Mode. Mutually Exclusive with USB-Serial port. Connect only RS-232 OR USB Serial Port.
RS-232 Out	RS-232 Serial Port TX Interface from PCBA towards external system for UART3. This Port can also be used to update firmware ISP-Mode.
1 PPS Output	+3.3 V GPIO, Timing locked to oscillator
10 MHz Buffer Output	OCXO: 10 MHz buffered output from internal oscillator
OCXO Lock	CMOS 3.3 V, references Internal Oscillator Lock Status

Mini-USB

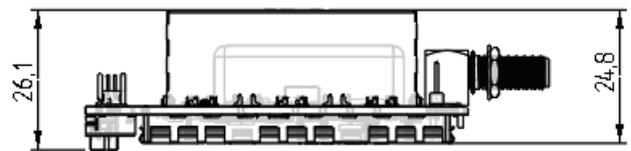
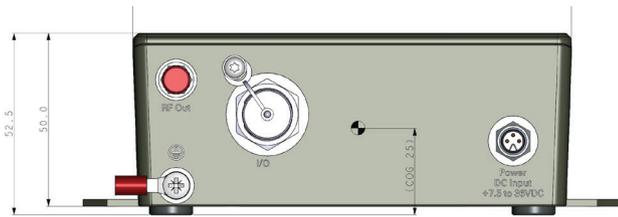
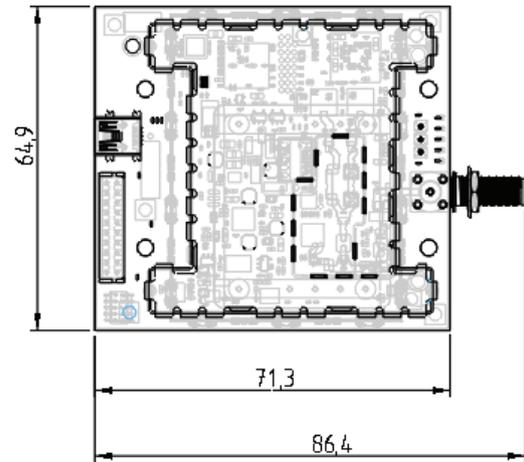
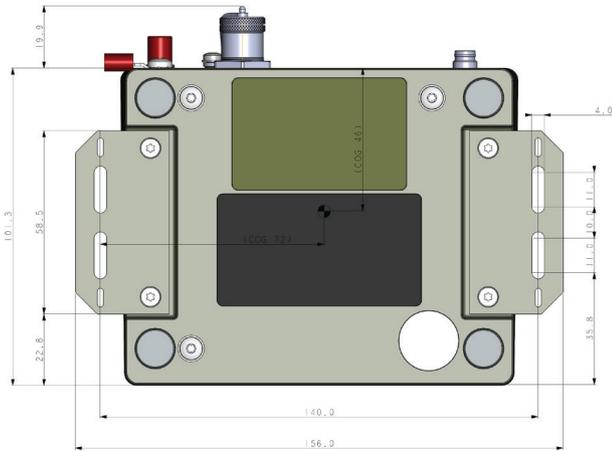
Type	Mini-USB B 2.0
Signal/Description	SCPI Control/Monitoring Port

Typical Specifications continued

Power	
Power DC Output	7.5 V – 36 V
Power AC Input	100 V to 240 V
Power Consumption	2.6 W, Typical
Environmental (Tested in Accordance with MIL-STD-810)	
<i>Temperature</i>	
Operating Temperature	
With Enclosure	-20°C to 55°C
Without Enclosure	-10°C to 70°C
Storage Temperature	-25°C to +85°C (with or without enclosure)
Relative Humidity	
Operating	10% to 90% (non-condensing) at 40°C
Storage	10% to 95% (non-condensing) at 40°C
Altitude	0 to 55,000 Ft
<i>Shock and Vibration (applies to models with enclosure)</i>	
Non-Operational Survival Shock	MIL-STD-810 - Vehicle
Handling and Transportation	MIL-STD-810 - Vehicle
Non-operational Transport Vibration	MIL-STD-810 - Vehicle
Ingress Protection	Applies to Models with enclosure IP67 Enclosure
MTBF	> 20,000 Hours at +40°C
Regulatory and Compliance	
Regulatory Standards	CE/UKCA
	RoHS/WEEE
	REACH
	CSA
Military Standards	MIL-STD-461
	MIL-STD-810
Conducted Emissions	FCC 47 CFR Part 15, section 15.107(b)[3]
	RSS-Gen Issue 4 section 8.8[4]
	MIL-STD-461

Typical Specifications continued

Mechanical					
	Weight	Width	Depth (board only)	Depth (W/ Connectors)	Height
RSR-2000 22182583-000	1.07 oz	2.554 in	2.8 in	3.4 in	1.03 in
	30.3340 g	6.49 cm	7.13 cm	8.64 cm	2.61 cm
RSR-T2100 22182952-000	20.265 oz	2.554 in	2.8 in	3.4 in	1.03 in
	574.5031 g	6.49 cm	7.13 cm	8.64 cm	2.61 cm
RSR-T2010 22177750-000	2.30 oz	2.554 in	2.8 in	3.4 in	1.03 in
	65.2039 g	6.49 cm	7.13 cm	8.64 cm	2.61 cm
RSR-T2110 22182931-000	21.50 oz	6.14 in	3.99 in	5.00 in	2.08 in
	609.5148 g	15.60 cm	10.13 cm	12.71 cm	5.25 cm
RSR-T2020 22183329-000	2.30 oz	2.554 in	2.8 in	3.4 in	1.03 in
	65.2039 g	6.49 cm	7.13 cm	8.64 cm	2.61 cm
RSR-2030 22191900-000	1.00 oz	2.554 in	2.8 in	3.4 in	1.03 in
	28.3495 g	6.49 cm	7.13 cm	8.64 cm	2.61 cm
RSR-T2130 22186583-000	20.20 oz	6.14 in	3.99 in	5.00 in	2.08 in
	572.6604 g	15.60 cm	10.13 cm	12.71 cm	5.25 cm



Dimensions are indicated in millimeters

Transcoder 2.0 Variants with Enclosure

Transcoder 2.0 Module Variants (no Enclosure)

Ordering Information

Catalog Number	Description
22182583-000	RSR-T2000 Transcoder 2.0
22182952-000	RSR-T2100 Transcoder 2.0 w/IP67 Encl
22177750-000	RSR-T2010 Transcoder 2.0 w/CSAC
22182931-000	RSR-T2110 Transcoder 2.0 w/CSAC w/IP67 Encl
22183329-000	RSR-T2020 Transcoder 2.0 w/TCSAC
22191900-000	RSR-T2030 Transcoder 2.0 w/MEMS
22186583-000	RSR-T2130 Transcoder 2.0 w/MEMS w/IP67 Encl
Software Options	
22186757-000	Transcoder 2.0 100 Hz Refresh Software Option - Factory Installed
22188232-000	Transcoder 2.0 ICD GPS 153 Software Option - Factory Installed
Optional Accessories	
22187160	Transcoder 2.0 Power DIN Mating Cable Assembly
	AMPHENOL M8AS-03BFFM-SL7D01 Connector
22187161	Transcoder 2.0 12-pin DIN Communication Mating Connector
	Bulgin PXMBNI12FIM12ASCPG9 Connector
22187162	Transcoder 2.0 20-Pin Breakout Cable Assembly



Contact Us: +1 800 835 2352 | avcomm.sales@viavisolutions.com.

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rsr-transcoder-2.0-ds-avi-nse-ae
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