



RGMS

Time and Frequency Reference for Military Platforms

An OCXO oscillator disciplined by a GNSS receiver hardened against jamming and spoofing. When the signal drops, holdover takes over and the platform's time and frequency reference carries on uninterrupted.



1.4 kg

COMPACT CHASSIS

OCXO

HOLDOVER OSCILLATOR

9-48 VDC

WIDE INPUT • POE

-40...+71 °C

OPERATING RANGE

MIL-STD-810H

MIL-STD-461H

RTCA DO-160G

IP65

ROHS

SPECIFICATIONS

STANDARDS & COMPLIANCE

Environmental	MIL-STD-810H (compliant design)
EMC	MIL-STD-461H (compliant design)
Airborne	RTCA DO-160G (designed to meet)
Ingress Protection	IP65
Materials	RoHS compliant
Operating Temp.	−40 °C ... +71 °C
Storage Temp.	−55 °C ... +85 °C

GNSS

Constellations	GPS • GLONASS • Galileo • BeiDou (concurrent)
Bands	L1 & L2 (dual band)
Sensitivity — Tracking	−167 dBm
Sensitivity — Reacquisition	−160 dBm
TTFF (cold / hot)	24 s / 2 s
Antenna	SMA • external LNA 17–50 dB

TIMING & OSCILLATOR

Oscillator	OCXO • SC-cut
Oscillator Stability	±30 ppb (−40...+75 °C)
Aging	±1 ppb / day • ±100 ppb / year
Phase Noise @ 100 Hz	−135 dBc/Hz
Phase Noise @ 10 kHz	−150 dBc/Hz
Warm-up	< 3 min (±100 ppb, 25 °C)
GNSS Time Pulse	5 ns (1σ)
Holdover (24 h)	< 25 μs (typ.)
Freq. Output	4× 10 MHz
Time Code	IRIG-B (RS485)
Time Protocols	NTP / PTP

POWER & MANAGEMENT

Input	9–48 VDC
PoE	PoE+ (IEEE 802.3at)
Power Priority	Adapter first • falls back to PoE
Consumption	10 W typical • 25 W maximum
Protocol	SNMPv2
Console	RS232 Console Port

MECHANICAL

Chassis	Standalone • bracket mount
Dimensions (W×H×D)	120 × 64 × 150 mm
Weight	1.4 kg
Rack Chassis	19" 1U — separate product

GNSS SECURITY FUNCTIONS

Spoofing detection	Consistency monitoring • multi-constellation • known antenna position
Jamming detection	RF spectrum monitoring
Status reporting	To host at every navigation epoch
Event logging	Detection events are logged
Receiver integrity	Signed firmware • configuration lock

OUTPUT CHARACTERISTICS

10 MHz — waveform	Sine
10 MHz — output impedance	50 Ω
10 MHz — output level	+13 dBm
10 MHz — harmonic suppression	< −40 dBc
10 MHz — isolation between outputs	> 25 dB
1PPS — amplitude / impedance	3.3V TTL, 50 Ω
1PPS — pulse width	20ms - 50ms - 100ms - 200ms - 500ms
1PPS — jitter	< 5 ns RMS
IRIG-B — format code	B001, B002, B003, B004, B005, B006, B007
IRIG-B — modulation	DCLS / RS485
PTP — standard / profile	IEEE 1588-2008, Default Profile
PTP — accuracy	≈ 1 μs
NTP — stratum	Stratum 1

INTERFACES, SERIAL LINK AND NMEA

CONNECTORS

REF	FUNCTION	CONNECTOR	MATING	PINS
PWR	Power	D38999/24FA98PN	D38999/26FA98SN	3
IN	Input	D38999/24FC98PN	D38999/26FC98SN	10
OUT	Output	D38999/24FC98SN	D38999/26FC98PN	10
1 – 4	10 MHz ×4	SMA — Amphenol 132170-12SS	SMA	—
ANT	GNSS antenna	SMA — Amphenol 132170-12SS	SMA	—
M&C	Ethernet / PoE+	RJ45 — Amphenol MRJR	RJ45	8

PWR – POWER • D38999/24FA98PN

PIN	SIGNAL	DESCRIPTION
A	+VDC	Supply input, 9–48 VDC
B	VDC RTN	Supply return (0 V)
C	CHASSIS GND	Chassis ground

IN – INPUT • D38999/24FC98PN

PIN	SIGNAL	DESCRIPTION
1	RS232_IN_1	NMEA input 1 — data
2	RS232_IN_1_GND	NMEA input 1 — signal ground
3	RS232_IN_2	NMEA input 2 — data
4	RS232_IN_2_GND	NMEA input 2 — signal ground
5	RS485_IN+	RS422/485 input — line A
6	RS485_IN–	RS422/485 input — line B
7	1PPS_IN+	1PPS input — differential +
8	1PPS_IN–	1PPS input — differential –
9	CONSOLE_RX	RS232 console — data to unit
10	CONSOLE_TX	RS232 console — data from unit

NMEA 0183

Inputs	2× RS232 • 1× RS422/485
Outputs	2× RS232 • 1× RS422/485
Supported sentences	GGA • ZDA • RMC • GLL
Talker ID (prefix)	GP • GL • GA • BD • GN • -- (wildcard)
Sentence selection	Configured independently for input and output
Prefix translation	Input and output talker IDs are independent

OUT – OUTPUT • D38999/24FC98SN

PIN	SIGNAL	DESCRIPTION
1	RS232_OUT_1	NMEA output 1 — data
2	RS232_OUT_1_GND	NMEA output 1 — signal ground
3	RS232_OUT_2	NMEA output 2 — data
4	RS232_OUT_2_GND	NMEA output 2 — signal ground
5	RS485_OUT+	RS422/485 output (NMEA) — line A
6	RS485_OUT–	RS422/485 output (NMEA) — line B
7	IRIG_B+	IRIG-B (RS485) — line A
8	IRIG_B–	IRIG-B (RS485) — line B
9	1PPS_OUT+	1PPS output — differential +
10	1PPS_OUT–	1PPS output — differential –

SERIAL INTERFACES

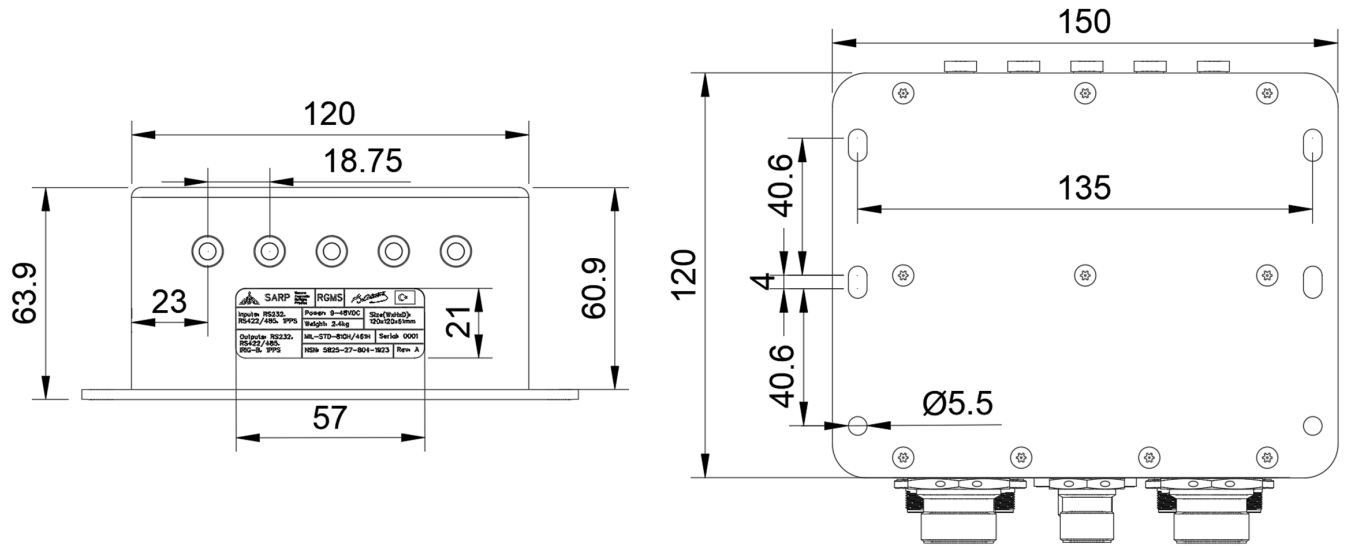
Baud rate	600 – 115200
Data bits	5 – 8
Stop bits	0 / 1 / 2
Console	RS232, dedicated line
Ethernet	RJ45, PoE+ (IEEE 802.3at)

GNSS ANTENNA

Connector	SMA (female)
External LNA gain	17 – 50 dB
Antenna feed	3.3 V DC, max. 100 mA
Maximum cable length	max. 30 m (RG-58)

Re-labelling: the talker ID accepted on input and the one emitted on output are independent. A \$--GGA arriving on the wildcard prefix can be re-emitted as \$GPGLL; sentence type and prefix are selected separately.

MECHANICAL AND COMPLIANCE



MECHANICAL & ENVIRONMENTAL

Mounting hole pattern	6 × Ø5.5 mm
Cooling	Natural convection, fanless
Humidity	98% RH, non-condensing
Altitude	15 000 m / 49 000 ft (DO-160G Cat. C)
Vibration	MIL-STD-810H
Shock	MIL-STD-810H

COMPLIANCE

Environmental	MIL-STD-810H (compliant design)
EMC	MIL-STD-461H (compliant design)
Airborne	RTCA DO-160G (designed to meet)
Ingress Protection	IP65
Materials	RoHS compliant

ORDERING AND DOCUMENT INFORMATION

DOCUMENT & COMMERCIAL

Part number	RGMS-R1
Ordering options	-RU Rack Chassis
NSN	5825-27-804-1923
Warranty	24 months

SAFETY AND INSTALLATION

Mounting location	Bolt the chassis to a heat-conducting metal surface; the unit cools through its body.
Grounding	Bond chassis ground at J1-C to platform ground.
Supply	Reversed polarity blows the protection fuse. Verify polarity before connecting.
Connectors	The D38999 connectors are keyed – do not force them. Inspect pins for damage before mating.