M12+ ONCORE™ RECEIVER

THE IDEAL RECEIVER FOR THE AUTOMOTIVE OEM AND SYSTEMS INTEGRATOR

Key Features of the M12+ Oncore

- 3 Volt operation
- 12 Channel simultaneous operation
- 185mW Power consumption
- Small 40 * 60 * 10 mm form factor
- 60 Seconds typical cold start TTFF
- 40 Seconds typical warm start TTFF
- 15 Seconds typical hot start TTFF
- <1s internal reacquisition
- DGPS support including base-station mode
- Antenna current sense detection

The M12+ Oncore is one of the newest members of the successful Oncore family, built on Motorola's strong legacy and experience in the specialized GPS market.

Rigorous standards for reliable performance

The M12+ Oncore receiver is a high performance, low power GPS receiver ideal for demanding automotive applications. Built in a plant qualified to QS-9000, the M12+ Oncore meets rigorous automotive environmental conditions for vibration and temperature. From commercial fleet tracking to consumer telematics, the M12+ represents the right choice for reliable, repeatable positioning.

Motorola Matching Automotive Grade HAWK Active Antenna

- 24dB Active Antenna
- 3 Volt operation
- 16mA typical current consumption
- Magnetic or direct mounting methods
- <1.8dB typical noise figure

There's only one name for quality and performance in GPS technology.

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M12+ Oncore Receiver Technical Specifications

From Motorola, the leader in GPS technology

The Oncore family of GPS receivers demonstrates Motorola's quest for product and service excellence, and is further evidenced by our QS-9000 certification and Six Sigma quality achievements. Understand Motorola's reliability, responsive support and long-term commitment and you understand why Oncore is the receiver of choice. *After all, it's not where you are, it's where you're going.*

GENERAL CHARACTERISTICS	Receiver Architecture	12 channel L1 1575.42 MHz C/A code (1.023 MHz chip rate) Code plus carrier tracking (carrier aided tracking)
	Tracking Capability	12 simultaneous satellite vehicles
PERFORMANCE CHARACTERISTICS	Dynamics	Velocity: 1000 knots (515 m/s) > 1000 knots (515 m/s); at altitudes < 60,000 ft. (18,000m) Acceleration: 4g Jerk: 5 m/s^3 Vibration: 7.7G per Military Standard 810E
	Acquisition Time (Time To First Fix, TTFF) (Tested at –30 to +85ºC)	15s typical TTFF-hot (with current almanac, position, time and ephemeris) 40s typical TTFF-warm (with current almanac, position, and time) 60s typical TTFF-cold (no stored information) < 1.0s internal reacquisition (typical)
	Positioning Accuracy	100 meters 2dRMS with SA as per DoD specification Less than 25 m SEP without SA
	Timing Accuracy (1 Pulse per second, 1 PPS)	< 500nS with SA on
	Antenna Requirements	Active antenna module powered by receiver module 18dB to 36dB external antenna gain measured at input to receiver 3 V or 5 V Antenna power provided via header connector
	Datum	WGS-84 Default One user definable datum
SERIAL COMMUNICATION	Output Messages	Latitude, longitude, height, velocity, heading, time Motorola binary protocol at 9600 baud NMEA 0183 at 4800 baud (GGA,GLL, GSV, RMC, VTG, ZDA) Software selectable output rate (continuous or poll) TTL interface (0 to 3 V) Second COM port for RTCM input
ELECTRICAL CHARACTERISTICS	Power Requirements	2.85 to 3.15 Vdc; 50 mVp-p ripple (max)
	"Keep-Alive" BATT Power	External 2.2 Vdc to 3.2 Vdc, 5 uA typical @ 2.7 Vdc @ 25ºC
	Power Consumption	< 185mW @ 3 V without antenna
PHYSICAL CHARACTERISTICS	Dimensions	40.0 x 60.0 x 10.0 mm (1.57 x 2.36 x 0.39 in.)
	Weight	Receiver 25 g (0.9 oz.) Active Antenna Module < 40 g
	Connectors	Data/power: 10 pin (2 x 5) unshrouded header on 0.050 in. centers (available in right angle or straight configuration) RF: right angle MMCX (subminiature snap-on)
	Antenna to Receiver Interconnection	Single coaxial cable Antenna sense circuit
ENVIRONMENTAL CHARACTERISTICS	Operating Temperature	-40ºC to +85ºC
	Storage Temperature	-40ºC to +105ºC
	Humidity	95% over dry bulb range of +38ºC to +85ºC
	Altitude	18,000 m (60,000 ft.) maximum > 18,000 m (60,000 ft.) for velocities < 515 m/s (1000 knots)
MISCELLANEOUS	Standard Features	Motorola DGPS corrections at 9600 baud on COM port one RTCM SC-104 input Type 1 and Type 9 messages for DGPS at 2400, 4800 or 9600 baud on COM port two NMEA 0138 output Inverse DGPS support
	Optional Features	Lithium battery backup
NOTES	All specifications typical and quoted at 25°C unless otherwise specified	

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For further information visit www.motorola.com/gps or contact the following:

Motorola GPS USA +1 602 659 8084

Motorola GPS EMEA + 44 1256 488 465

Americas - Synergy Systems LLC (Value Added Reseller)
San Diego, CA, +1 858 566-0666, www.synergy-gps.com

Central & Eastern Europe - Avnet BFI UK +44 1908 326342
www.bfi.avnet.com/gps

South Africa - Avnet Kopp SA +27 11 444 2333
www.avnetkopp.co.za

Motorola China Electronics Ltd., Beijing, China +86 10 656 42165

Motorola Korea, Inc., Seoul, Korea +822 3466 5580