## 12+ ONCORE™ RECEIVER



# THE IDEAL RECEIVER FOR THE AUTOMOTIVE DEM 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 intermal reacquisition</li>
- DGPS support including base-station mode
- Antenna current sense detection

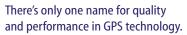
The M12+ Oncore is one of the newest members of the successful Oncore family, built on Motorola's strong legacy and experience in the specialized GPS market.

#### 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</li>







#### 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.

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GENERAL CHARACTERISTICS	Receiver Architecture	12 channel L1 1575.42 MHz
CHAKACIEKISIICS		C/A code (1.023 MHz chip rate)
		Code plus carrier tracking (carrier aided tracking)
	Tracking Capability	12 simultaneous satellite vehicles
PERFORMANCE	Dynamics	Velocity: 1000 knots (515 m/s) > 1000 knots (515 m/s); at
CHARACTERISTICS		altitudes < 60,000 ft. (18,000m) Acceleration: 4g
		Jerk: 5 m/s³
		Vibration: 7.7G per Military Standard 810E
	Acquisition Time	15s typical TTFF-hot (with current almanac, position, time and ephemeris)
	(Time To First Fix, TTFF)	40s typical TTFF-warm (with current almanac, position, and time) 60s typical TTFF-cold (no stored information)
	(Tested at $-30$ to $+85$ °C)	< 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	Output Messages	Latitude, longitude, height, velocity, heading, time
COMMUNICATION		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	Power Requirements	2.85 to 3.15 Vdc; 50 mVp-p ripple (max)
CHARACTERISTICS	"Keep-Alive" BATT Power	External 2.2 Vdc to 3.2 Vdc, 5 uA typical @ 2.7 Vdc @ 25°C
DUVCIONI	Power Consumption	< 185mW @ 3 V without antenna
PHYSICAL	Dimensions	40.0 x 60.0 x 10.0 mm (1.57 x 2.36 x 0.39 in.)
CHARACTERISTICS	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	Operating Temperature	-40°C to +85°C
CHARACTERISTICS	Storage Temperature	-40°C to +105°C
	Humidity	95% over dry bulb range of +38°C to +85°C
	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
JOLLENIEL OUU	Standard (Catales	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	
An specifications typical and quoted at 25 C utiless otherwise specified		



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

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