

WATERLOG®

YSI incorporated

MODEL H-2221™

Satellite transmitter* with internal GPS receiver

The WaterLOG® H-2221 satellite transmitter links up with all XL™ series data loggers, allowing any of the sensor readings to be transmitted over the satellite system. The H-2221 is easy to use and has many built in features for setup and testing. The transmitter is packaged in a corrosion resistant NEMA 4X fiberglass enclosure.

* GOES/METEOSAT Satellites

KEY FEATURES

- Certified for Self-timed and Random transmissions
- Supports 100, 300 and 1200 BPS
- Binary, ASCII, Pseudo-binary data formats
- Low standby power (6mA typ)
- Three status LEDs
- -40° to +50° C operating temperature
- Precision ±0.28 ppm system clock
- Menu driven setup interface using the XL™ series or System-5000™ data loggers
- Two RS-232 ports: The Host port connects to the data logger. The Auxiliary port provides for setup, configuration and testing via a built-in user interface.
- Transmission scheduling and other time critical operations are initiated and supported by the transmitter (not the data logger)
- Built in GPS receiver
- GPS status screen displays antenna azimuth/elevation settings and number of satellites in view.



PERFORMANCE		
General Transmit Power	100 and 300 bps	7.08 watts (38.5 dBm, carrier only)
	1200 bps	11.2 watts (40.49 dBm, carrier only)
	GOES Antenna	11 dBi gain, right hand circular polarization
Frequency Range	401.70100 MHz to 402.098500 MHz (GOES) 402.10150 MHz to 402.43450 (Meteosat)	
Channel Bandwidth	1.5KHz (100/300 bps)	
	3.0 KHz (1200 bps)	
	750 Hz (with firmware upgrade)	
Transmit Frequency	Initial accuracy	±5Hz (with GPS sync)
	Short term stability	<1Hz/sec
	Ageing	±1ppm/year (removed via GPS)
Timekeeping	Initial	±100 microseconds (via GPS)
	Drift	±12 ms/day (-40° to 50°C)
	Temperature	±0.28ppm
	GPS Updates	Every 12 hours (default)
Transmission Format	100 and 300 BPS	Domestic Channels (1-266)
	1200 BPS	High Data Rate Channels (1-133)
Features	Self-Timed & Random transmissions	
	Protected against open or shorted antenna	
	Measured forward & reflected RF power	
	Configuration stored in non-volatile flash memory	
	Built-in "menu" mode setup	
Power Requirements	Voltage Input	11.0 to 15.0 V (12V nominal)
	Current	6 mA typ (sleep, GPS off)
		33 mA typ (sleep, GPS on) 2.9A typ (transmitting)
Host & Auxiliary Interfaces	Type	2-ports, RS-232, DCE
	Baud Rate	9600, fixed
	Protocol	printable ASCII
Environmental	Operating Temperature	-40 to 50° C (-40 to 122° f)
	Storage Temperature	-40 to 85° C (-40 to 185° f)
	Humidity	0 to 95% (non condensing)
Misc	Indicator LEDs	3ea (Fault, GPS-On, RF-On)
	Fail-safe fault reset	Push button

GPS Receiver	GPS Input	NAVSTAR GPS L1 code	
	Channels	16	
	Frequency	1.57542 Ghz	
	Antenna	Passive or active	
	Format	Latitude, longitude, altitude, time	
	Acquisition Sensitivity	-149 dBm	
	Tracking Sensitivity	-159 dBm	
	Time (PPS)	±62ns to UTC time	
	Acquisition Time	Hot Start	2.5 seconds
		Warm Start	34 seconds
Cold Start		39 seconds	
Transmitter Connectors	Antenna	SMA, female, 50-Ohm	
	GPS	MCX, female jack, 3.3 volt bias	
	RS_232 (2ea)	2x5 position polarized box header	
	Power connector	2-position, 5.08mm, Phoenix 1757242	
	Power plug	2-position, 5.08mm, Phoenix 1757019	
USB	Type B (device)		
Transmitter Mechanical	Housing Material	Anodized aluminum	
	Size	19 W x 11.4 L x 3.8 H cm (7.5" W x 4.5" L x 1.5" H)	
	Weight	0.68Kg (1.5 Lbs)	
Environmental Enclosure & Connectors	Material	Fiberglass	
	Type	NEMA 4X, hinged cover, screw closure	
	Size	8.0" x 6.0" x 4.0"	
	GOES Antenna	Type N	
	GPS Antenna	TNC	
	RS-232	DB-9S	
Power	2-position barrier strip		
General Certification	NOAA/NESDIS V1.0b for Self-timed and Random transmissions. Upgradeable to NOAA/NESDIS V2.0. EUMETSAT certified for self-timed 100 BPS transmission.		
MISCELLANEOUS			
Warranty	The WaterLOG ® H-2221 is warranted against defects in materials and workmanship for one year from date of shipment.		
Note	Specification subject to change without prior notice due to on going commitment to product testing and improvement. LR January 15, 2011. D26 0311.		