



ORBITER SPIRE SPECIFICATION - SPACE AGE TIMING SYSTEM

ADVANCED MOBILE RFID BOLLARD READER

Better Software Performance, Easier Wireless Setup, Quick Deployment, Patented Design all without cables.

The Spire75 captures data more quickly and accurately with advanced RF communications utilizing the Orbiter Reader Protocol (ORP).

The Spire is ranked as the most accurate RFID timing system tested by the US Air Force, Edwards AFB. Edwards AFB is the official testing laboratory for the USAF.

In addition to being a superb timing machine, the SPIRE and mobile SLING readers provide the best Marathon Way Points detections in the world. The readers cost 1/3 that of traditional mat readers, deploy instantly with long life battery power, and connect by data cellular, Wi-Fi or Ethernet.

Each reader is condition monitored from a tough tablet or laptop held by the timer. This allows complete freedom of movement by the timer without the need to be anchored to the Start / Finish line.

SPIRE readers are the Shelby Super Car of RFID race timing. Like the Shelby vehicle, we took a production RFID reader, and super charged it with custom embedded code, new firm wear, and phased detect antenna technology. Using "thread safe" coding we made the heavy Plastic Pelican Box found in other timing systems obsolete.

We modified the core RFID embedded radio software from the ground up to enhance connectivity reliability. Consistent reliable performance in harsh and dirty RF environments that are constantly up and down. We are experts in wireless data communications as our engineers have worked together since the mid '90's for Civilian, Aerospace, and Military projects.

No other mobile device has the increased 24 volt power as the Orbiter Spire has for robust tag detections in a crowded environment. For Race Timing, the USAF has measured Orbiter high speed tag detections at 1/100th of a second accurate. The fastest independent tested speed in the world.

Instantly deploy multiple readers by dropping them and simply turn them "on". Daisy chain readers and pass data between them for free long distance communications. No IP configuration as the reader's auto connect. Choose built in communication method of Ethernet, WI-FI, and Data-Cellular. Select either standard WI-FI or Military Spec WI-FI (2 mile range), or industrial data-cellular for maximum economy.

For large scale global deployments, the Spire conforms out-of-the box with major worldwide RFID standards and interfaces, including FCC, Japan's MIC, ETSI EN 302 208, IPv6, FIPS and TLS compliance help ensure network security. Iridium Satellite connectivity as an option. A built in USB host port with select third party adapters provide easy connectivity with Video and Sound.

Choice of Internationally accepted UHF passive or Microwave semi-passive variant for KART / Motor Vehicles. No cables or Mats.

Connect GPS, IR, and other sensors making the SPIRE a go-to mobile smart device. The ideal smart tower sensor platform.

Bollard Reader



Auto connect with distributed database operating on a FIFO bases. Every tag read is EPOCH Time stamped at detection and held in non-volatile memory.

Custom built in uninterruptible power supply with battery indicator.

Mil. Spec. shock, dust, extreme weather. US Capitol Police reports routinely drops the reader hard on concrete over 5 years and amazingly keeps on working.

ORBITER RFID READER SPIRE75™ PRODUCT DATA SHEET

PHYSICAL CHARACTERISTICS

Dimensions:	47" (H) x 17" (L) x 10" (W). 119.38 cm (L) x 43.18 cm (L) x 25.4 (W)
Weight:	29 lbs +- 1 lbs (13.15 kg + - .45 kg) including batteries.
Housing Material:	High impact roto-molded traffic bollard, carbon fiber, steel, aluminum, antenna plastics.
Visual Status Indicators:	Multi Color LED's for power condition and application status.
Mounting:	Mobile placement with high quality in-line skate wheels with bearings for smooth roll on surface.

CONNECTIVITY

Communications:	Proprietary RF communications to application layer. 10/100 BaseT Ethernet (RJ45) w POE support, USB Client (USB Type B), USB Hoist Port (Type A).
General Purpose	I/O 2 input, 32 outputs, optically isolated (Terminal Block).
Power Supply:	POE, POE+ or + 24V DC (UL Approved), 120 and 220 AC Marine Plug.
Antenna Ports:	Standard Multi Ports connected to Orbiter Phased Detect antenna. Optional 4 and 8 port models available for connecting customer selected antennas.

ENVIRONMENTAL

Operating Temp –	Min -23 degrees F (-30.5) Vancouver, BC, Canada, Nov 30, 2015. High 131 degrees F, 55 degrees C, Death Valley, CA, July 2015.
Humidity	5-95% non-condensing
Shock and Vibration:	MIL-STD-810G

REGULATORY COMPLIANCE

Safety	UL 60950-01, UL 2043, IEC 60950-1, EN 90950-1
RF/EMI/EMC	FCC Part 15, RSS 210, EN 302 208, ICES-003 Class B, EN 301 489-1/3, MIC school broadcast, regional pre-approval.
SAR/MPE	FCC 47CFR2: OET Bulletin 65; EN 50364
Other:	ROHS, WEEE

HARDWARE, OS AND FIRMWARE MANAGEMENT

Memory	Flash 512 MP, DRAM 256 MP
Operating System	Linux
Application Code:	Java
Firmware Upgrade	Web-based and remote firmware upgrade capabilities
Management Protocols	RM 1.0.1 (with XML over HTTP/HTTPS and SNMP and NTP
Network Stack	IPv4 and Ipv6
Security	Transport Layer Security Ver 1.2 FIPS 140
Air Protocols	EPCglobal UHF Class 1 Gen2 ISO 18000 BC
Frequency Band	Global Reader 902 MHz – 928 MHz (Maximum, supports countries that use a part of this band) 865 MHz – 869 MHz., 2.4 GHz International Accepted WI-FI band, and Country specific accepted data cellular band.
Transmit Power Output	10 dBm to +31.5 dB, (POE+ 24 volt External DC) +10dBm to +30.0 dBm (POE).
Max Receive Sensitivity	-82 dBm
IP Addressing	Static and Dynamic
HOST Interface Protocol	ORP and LLRP
API Supported	Host Applications – Java EDK and Net C, Embedded Applications Java SDK
Warranty	1 year all parts and labor
RECOMMENDED SERVICES	Annual Service and Support includes all parts and labor warranty extension plus automatic software upgrades for 18% of sale price annually.
Advanced Services	RFID design and world wide deployment including IC tag & antenna design, reader build (LF, HF, NFC, UHF, Microwave, IR), application software for local and cloud scaled for super computers. Global reach with in country technicians to service your needs.

