

ITC-220™ Base Station Transceiver

High Performance Wireless Links for Railroad Applications

Cal/Amp®



Experience The Advantage

- AAR Standard S-5702
- ANSI/TIA-603-G-2004
- MIL-STD-810E
- American Recovery and Reinvestment Act-Buy American Provision

Fixed Locations Install for Back Office & Remote Applications Connectivity

CalAmp's line of ITC-220™ radios for locomotive, base station and wayside applications are manufactured specifically for use by North American Railroads for Positive Train Control (PTC) applications. PTC is a technology solution that prevents train-to-train collisions, over-speed derailments, movement of a train through a switch left in the wrong position, and incursion of trains into maintenance of way work limits.

Operating between 217.6 and 222.0 MHz, these multi-channel software defined radios meet railroad requirements for Inter-operable Train Control (ITC).

These radios are designed to meet relevant railroad specifications for operation in the harshest environments. With high power capacity, CalAmp's ITC-220™ radios provide wireless packet data transport between Locomotives, Base Stations, and Wayside locations.

Base radios are installed at fixed locations and provide RF connectivity between Back Office and remote applications. The backhaul between the Base radio and the Back Office is typically in the range of 56 kbps to 1 Mbps. Base radios provide radio coverage to all Wayside and operational Locomotive radios in the system.

ITC-220™ Specifications

General

Frequency Range	217.6 - 222.0 MHz
Channel Spacing	25 KHz
DC Input Voltage Range	48V: 42-54 VDC; Damage limit 60 VDC 24V: 21-27V; Damage limit 60 VDC
DC Current Drain (48 VDC Input)	48V: Transmit: 6A (peak) max into 50 ohm load; 4A typical; Receive: 0.6A max while receiving 24V: Transmit: 11A (peak) max into 50 ohm load; 7.5A typical, Receive: 1.2A max while receiving
DC Power Connector	Threaded 5/16-18 studs for ring lug connection
Antenna Connector	(3) Type N female 1-TX/RX (single antenna install) 1-RX1(multi-antenna RX only) 1-RX2(diversity RX only)
GPS Receiver	Active or passive antenna: Antenna power 3.3V 50mA max; Connector TNC Female
External Interface	(2) Ethernet 10/100 MBPS: Data Network Port RJ-45; Maintenance Port RJ-45

Configuration Interface

Module	SD Card
Display	Activity/Diagnostic LED's on front panel
Regulatory	Complies with FCC Parts 2, 15, and 90; Industry Canada SRSP-512

Environmental

Temperature Range	-40° to +70° C (Operating) -55° to +85° C (Storage)
Operating Humidity	0-95% non-condensing
Frequency Stability	± 0.1 ppm over operating temperature range

Transmitter

RF Output Power	75W PEP; Adjustable 10-75W PEP
Output Impedance	50 ohms; Operating VSWR < 3:1
Modulation Waveforms	16 kbps pi/4DQPSK (linear); 32 kbps pi/4DQPSK (linear)
Occupied Bandwidth	Meets 47 CFR90.210(f) Five aggregated channels
Modulation Designers	16 kbps: 8K90DXW; 32 kbps: 17K8DXW
Conducted Spurious Emissions	-25 dBm max
Max Duty Cycle Rating	50%

Receiver

Max Usable Sensitivity	16 kbps -111 dBm; 32 kbps -108 dBm
Static BER	<10 ⁻⁴ Adjacent
Channel Selectivity	70 db @ 25 kHz offset
Spurious Response Rejection	70 dB
Inter-modulation Response Rejection	65 dB
Blocking (1 MHz Offset)	80 dB
Number of Simultaneous Received Channels	24V and 48V: 16 paired as 8 diversity; Seven 16 kbps; One auto 16 kbps/32 kbps

Physical

Dimensions	EIA 19" (48.2 cm) rack compatible, 5U 8.75"(22.2 cm) max height
Weight	<40 lbs (18.41 kg)

About CalAmp

CalAmp (NASDAQ: CAMP) is a telematics pioneer leading transformation in a global connected economy. We help reinvent businesses and improve lives around the globe with technology solutions that streamline complex IoT deployments and bring intelligence to the edge. Our software applications, scalable cloud services, and intelligent devices collect and assess business-critical data from mobile assets, cargo, companies, cities and people. We call this The New How, powering autonomous IoT interaction, facilitating efficient decision making, optimizing resource utilization, and improving road safety. CalAmp is headquartered in Irvine, California and has been publicly traded since 1983. Lojack is a wholly owned subsidiary of CalAmp. For more information, visit calamp.com, or LinkedIn, Twitter, YouTube or CalAmp Blog.

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