

Code Blue®

DIGIPOINT™ RF SYSTEM PRODUCT SPECIFICATION

1.0 GENERAL

- 1.1 The Code Blue DigiPoint™ Radio Frequency (RF) System shall be a wireless communications network. It shall allow one radio module at the base station to communicate with up to 4 remote units in the field in a point-to-multi-point configuration. The system shall be used with emergency speakerphones with a push-to-activate operation, and shall be capable of either stand-alone operation or direct integration with a PBX or public telephone switch. In order to obtain the optimum system configuration, a qualified RF technician shall conduct a site survey.
- 1.2 The system shall have the following features:
 - 1.2.1 Data Interfaces
 - 1.2.1.1 Primary Serial Data Port: V.35 using a DB 25 Connector (RS-422/RS-232)
 - 1.2.1.2 Data Rate and Type: 256/512 kbps, Synchronous
 - 1.2.1.3 Serial Command Port: RS-232, 57600 bps, N, 8, 1, No flow, Echo on
 - 1.2.1.4 Latency: less than 5 ms.
 - 1.2.2 Power Requirements
 - 1.2.2.1 Input Voltage: 12 to 24v DC, 100-260v AC with AC option
 - 1.2.2.2 Power Consumption: 2 Watts in full operation (does not include add on cards)
 - 1.2.3 RF Specifications
 - 1.2.3.1 RF Frequency Band: 2.400 to 2.4835 GHz
 - 1.2.3.2 RF Channels: 4 channels
 - 1.2.3.3 RF Signal Bandwidth: 16 MHz (4 non-overlapping channels)
 - 1.2.3.4 OTA Chipping Rate: 11 M chip/sec
 - 1.2.3.5 PN Code Length: 16
 - 1.2.3.6 Spreading codes: 4 programmable orthogonal codes
 - 1.2.3.7 Processing Gain: 12.04 dB
 - 1.2.3.8 Modulation Type: BPSK (256) or QPSK (512kbs) DSSS
 - 1.2.3.9 Transmitter Output Power: +20dBm max, set to allow CDMA operation
 - 1.2.3.10 Receiver Sensitivity: (10-6 BER) -93 dBm @ 256 kbps, -90 dBm @ 512 kbps
 - 1.2.4 Operating Temperature
 - 1.2.4.1 -30⁰ to +60⁰ C with solar shielding
 - 1.2.5 Other
 - 1.2.5.1 A line-of-sight range of up to 10 miles under normal operating conditions.
 - 1.2.5.2 Possible to install a microwave signal repeater at a strategic location in order to circumvent any natural or manmade obstacles that would make line-of-sight operation impossible. This shall be determined by a site survey conducted by a qualified RF technician.

2.0 SYSTEM CONFIGURATION

- 2.1 The system shall consist of two main components:
 - 2.1.1 RF remote microwave module connected to each speakerphone.
 - 2.1.2 RF-BASE Network Controller Station
- 2.2 The RF remote unit shall include the following equipment:
 - 2.2.1 RF remote microwave module
 - 2.2.2 Antenna and cable (type shall be determined after site survey)
- 2.3 The RF-BASE Network Controller Station shall include the following equipment:
 - 2.3.1 RF-BASE Network Controller
 - 2.3.2 2.4 GHz microwave Interface Module
 - 2.3.3 Antenna (type to be determined after site survey)
 - 2.3.4 Cables
 - 2.3.5 Internal battery backup
 - 2.3.6 Software for PC (if required)
 - 2.3.6 Manual
- 2.4 The Code Blue DigiPoint™ RF Systems package may also include an RF-Repeater. direct line-of-sight operation is not possible.
- 2.5 The configuration and equipment used shall be dependent upon the results of an on-site survey that shall be conducted by a qualified RF technician.

3.0 SPECIFICATIONS

- 3.1 System Specifications
 - 3.1.1 Product Description Digital Microwave Radio with a Programmable V.35 Synchronous Data Port
 - 3.1.2 Air Interface Proprietary Time Division Duplexing with Direct Sequence Spread Spectrum
 - 3.1.3 Overall Data Throughput Rate: 512, 256, 128, 64 kbps, selectable from configuration GUI
 - 3.1.4 End-to-End System Latency: Less than 5 ms
- 3.2 Data Channel Specifications
 - 3.2.1 Synchronous Data Port Interface: V.11 (V.35 w/ RS422 and RS232)
 - 3.2.2 Synchronous Data Rate: 512 kbps, 256kbps, 128kbps, 64kbps
 - 3.2.3 Clocking Transmit data and receive data clocks generated internally. Will sync to an external clock on the master side for a "tail circuit" operation.
 - 3.2.4 Data Interface Connector: 25 pin "D" type female
 - 3.2.5 Configuration Connector: 9 pin "D" type female
- 3.3 Power Requirements & Consumption
 - 3.3.1 Filtered DC nominal 12 to 24 volts, Earth Ground Required
 - 3.3.2 Absolute Minimum – Maximum: 10 to 32 volts
 - 3.3.3 Operating Current: 2 Watts (i.e. 20v @ 100ma) Typical
 - 3.3.4 AC Adapter Supplied Separately (100 to 260 VAC, 50-60 Hz)
- 3.4 RF Performance
 - 3.4.1 Frequency Range: Standard Model 2400 to 2483.5 MHz

- 3.4.2 RF Channels: 4 Operational
- 3.4.3 Spreading Method Direct Sequence with 16 PN Code Length
- 3.4.4 Modulation Direct Sequence: BPSK or QPSK
- 3.4.5 Processing Gain: 12.04 dB
- 3.4.6 RF Output Power: +18dBm max, set for maximum CDMA performance
- 3.4.7 Max System ERP: 32 dBi (18 dBm + 14 dBi Antenna)
- 3.4.8 Receive Sensitivity: -93 dBm/256 kbps @10⁻⁶ BER -90 dBm/512 kbps @ 10⁻⁶ BER
- 3.4.9 Transmit/Receive Burst Packet Synchronization RS-422 Balanced Pair, Output and Input
- 3.4.10 Antenna Integrated Internally w/ Opt. External 24 dBi Antenna 30 miles (64 km) Nominal w/ 16 dB Fade Margin
- 3.4.11 External Antenna Port "N" Type Female

3.5 Environmental & Physical Specifications

- 3.5.1 Operating Temperature: -30⁰ to +60⁰ C (Ambient with Solar Shielding)
- 3.5.2 Humidity: 0 to 95% - Non-Condensing
- 3.5.3 Shock and Vibration Mil Standard 810 D
- 3.5.4 Exposure to the Elements (in outside enclosure): NEMA 4X, Rain, Wind, and Ice Protected
- 3.5.5 Unit Dimensions (remote): 10 x 6.5 x 3.5 inches
- 3.5.6 Unit Dimensions (base): 19 x 15 x 13 inches

4.0 WARRANTY

- 4.1 The unit shall be warranted for a period of two (2) years. Reference manufacturers warranty for further details.

5.0 MANUFACTURER

- 5.1 The Manufacturer shall be Code Blue Corporation of Holland, Michigan. There are no equivalents.
- 5.2 Code Blue Corporation manufactures its products according to the most recent revision of product specifications, and shall not be held responsible for obsolete or outdated specifications. For the latest revision, please refer to www.codeblue.com.