# Data Connect IG202T-R38

## Multi-Standard Modem

The Data Connect IG202T-R38 is a Bell 202 frequency shift keyed (FSK) and quadrature amplitude modulation (QAM) modem for asynchronous and synchronous data transmission in 300-3400 Hz voice band. It is highly immune to interference and noise and permits extensive voice-band communication link utilization.

The modem supports several international standards ITU V.21, V.23, R.35, R.37, R.38A, R.38B, V.29, Bell 103, Bell 202 and proprietary Cegelec 1200/600Bd and Indactic 33 communication standards.

The modem can operate in half or full-duplex, point-to-point or point-to-multipoint mode.When using FSK modulation the recieve and transmit channels may be independently set.

The modem employs advanced DSP technology, thus offering high service flexibility through programmable features. Software configuration is performed via Hayes AT command set. AT commands can be initiated from any terminal application using an RS-232 communication interface. Additionally, for easy firmware upgrade a bootstrap loader is provided.

The modem features programmable modem capability for SCADA or power utility communication networks. It can support a range of standards including ITUR.35, R.37, R.38A, R.38B, V.21, V.23, Bell 103, and Bell 202. It is Fully programmable via Hayes AT command set. The modem also features Specialized Line, Power Line Carrier, or radio communication, as well as half or full-duplex operating modes.

The IG202T-R38 is designed for use in SCADA systems mainly based upon power utility communication networks. Depending on modulation standards it can communicate through specialized, private or leased lines, radio links and power lines (PLC)

The IG202T-R38 is available as a desktop modem or in two different types of standard 19" rack, including:
1U rack with 1, 2, or 3, modems per rack;
3U rack with 10, 12, or 14 modems per rack, with additional blank front plates covering unused slots. All connectors at the rear side are accessable at the back openings.

# Specifications

## Operation

**Type**    Data Transmission on audio frequency analog medium.

**Media**    Leased line, Radio, PLC.

**Modes**    -Asynchronous or synchronous, Point-to-point, multipoint, 2-wire or 4-wire.
-Support for synchronous Indactic 33 protocol.

## Standards

| Modulation | Transmission rate | Frequency deviation | Channel spacing (bandwidth) | Channel mean frequency adjustable in steps of 120Hz | |
|---|---|---|---|---|---|
| **FSK** | | | | Lowest | Highest |
| | Bd | Hz | Hz | Hz | Hz |
| **ITU R.35** | 50 | ±30 | 120 | 420 | 3300 |
| **ITU R.37** | 100 | ±60 | 240 | 480 | 3120 |
| **ITU R.38B** | 200 | ±90 | 360 | 540 | 3060 |
| **ITU R.38A** | 200/300 | ±120 | 480 | 600 | 3000 |
| **ITU V.21** | 300 | ±100 | 400 | | 1080/1750 |
| **ITU V.23/1/2** | 600/1200 | ±200/400 | 800/1600 | | 1500/1700 |
| **Bell 103** | 300 | ±100 | 400 | | 1170/2125 |
| **Bell 202** | 1200 | ±500 | 2000 | | 1700 |

| QAM | Transmission rate | Symbol rate | Constellation points | Carrier frequency | Mode |
|---|---|---|---|---|---|
| | Bps | | | Hz | |
| | 4800 | 2400 | 4 | 1700 | Half duplex |
| **ITU V.29** | 7200 | 2400 | 8 | 1700 | Half duplex |
| | 9600 | 2400 | 16 | 1700 | Half duplex |

## Interfaces

**DTE interface**
-RS-232C, DB9 (female) connector
-Signals: DCD, RD, TD, DTR, SG, DSR, RTS, CTS, RI
-Character length: 5-9 data bits, 1 start, 1 stop
-RTS/CTS delay: adjustable by 1ms step within range of 40-6825ms
-Option to transmit on RTS
-Configuration: AT command set

**Analog line**
-DB15 (female) connector
-600   or high impedance with return loss < 0.2
-Transmission level: 0 to -32dBm, programmable by 1dB step
-Recieve level: 0 to -36dBm, programmable by 1dB step, min.-48dBm
-Radio control: half-duplex control and squelch detection

**Power supply**
2-position screw plug type (for 2-2.5mm2 wire)

## General

**LED indication**
PWR, TXD, RXD, RTS, DCD

**Power supply**
9-18VDC, 9-12VAC, model 12
18-36VDC, 14-23VAC, model 24
36-72VDC, 25-50VAC, model 48

**Isolation**
Transformer up to 1500V

**Immunity to noise**
-Peak pulse noise: 100V Peak
-Effective interference at 50 Hz: 80V rms

**Temperature**
Operation and storage: -10° to +50°C

**Dimensions**
-desktop: aluminum enclosure 112x30x170mm
-19" rack: EUROCARD PCB, 160x100mm 3HE, 6T in 1U and 3U rack

## Ordering Information

| Model No. | Description |
| --- | --- |
| IG202T-R38-DC-12 | Standalone DC voltage (9-18 VDC) |
| IG202T-R38-DC-24 | Standalone DC voltage (18-36 VDC) |
| IG202T-R38-DC-48 | Standalone DC voltage (25-50VDC) |

## Contact Information