DATA-CONNECT

The Right Connection!

IG202T/V23 Industrial Grade Bell 202 & V23 1200 Baud Modem

IG202T/V23 Industrial Grade Modem is the most dependable and easy to install Bell 202 & V23 compatible leased line modem available today!!!

The Data Connect low speed IG-202T/V23 modem is designed and manufactured for rugged industrial communication networks. It is the most industrial grade 202T & V23 modem on the market operating from -40C to 85C (185F). The IG-202T/V23 modem delivers cost effective and reliable 1200bps asynchronous solutions for point to point and multipoint connectivity. For optimum performance, the modem employs FSK modulations to be compatible with Bell-202T and ITU-V23 standards and communicates over a variety of transmission lines.

The IG-202T/V23 modem is ideal for industrial communication applications including SCADA systems, RTUs, traffic monitor and control, and industrial and automation networks. The IG-202T/V23 modem supports RTUs with switch selectable settings and no software code commands. The IG-202T/V23 modem is designed to operate 4-wire full duplex or 2-wire half duplex over, Special Access Service VG6 that is a 4-wire channel suitable for the access segment of most voice grade data circuits, unconditioned leased lines, or private metallic circuits.

The IG-202T/V23 modem can operate over a wide range of AC or DC power supply voltages and temperatures. With proven reliability and ease of installation the IG-202T/V23 is ideal for point-to-point and point-to-multipoint polling networks, where reliability and low-network latency are critical for system performance. The IG-202T/V23 modem has internally Flow Control options of "Constant On" and "Controlled by RTS". The Flow Control options are Dip-Switch selectable and the options thoroughly performs the same functionality as DataSense or other flow control and buffering schemes. With its Auto-RTS mode, the modem can support DTE/RTUs with 3-wire serial interface (TD, RD, SG) in point-to-point and multi-point polling applications.

The IG202T/V23 industrial grade Bell 202/V23 modem has selectable EIA RS-232/V.24 and RS-485 DTE support. It also features built-in diagnostics for local and remote testing. The configuration and options on the IG202T/V23 is provided by DIP switches and jumpers, eliminating the need for an AT command set. Unlike any other 202T/V23 modem you can buy, the IG202T/V23 has heavy-duty surge protection at the power supply and leased line inputs. IG202T/V23 also uses an isolated DC to DC power converter for protecting critical DC or battery power systems.

DATA CONNECT ENTERPRISE
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www.dataconnectus.com

General Specifications

Data rate: 0-1200 bps
Data format: Transparent to DTE
DTE interface: EIA RS-232/V.24, or RS-485 compatible
Line conditions: TELCO voice band 4- or 2-wire leased line, conditioned or unconditioned lines. Private metallic circuits
Operating modes: 2-wire half-duplex or 4-wire full-duplex
Modulation: FSK, Bell 202T or V.23 compatible
• Mark = 1200 Hz, Bell 202 & 1300 Hz, V.23
• Space = 2200 Hz, Bell & 2100 Hz, V.23
• Soft Carrier = 900 Hz Bell 202T only)
RTS-CTS Delay: 10 or 33 ms, Bell 202T & 33 ms, V.23
Receiver dynamic range: 0 to –43 dBm
Operating temperature: -40°C to +85°C
Power supply: Wide range switching power supply:
• IG202T/V23 (AC version): 90 to 265 Volts AC, 50/60 Hz, single phase or 90 to 400 VDC
• IG202T/V23-DC (DC version):10 to 60 Volts DC
Surge protection: Leased line, up to 15KV
Flow control: Constant or RTU Controlled, DIP switch selectable
Carrier loss recovery: Automatically
Auto RTS: Support DTE without hardware RTS
Anti-streaming: 30-second timer to prevent transmitter lock-up network

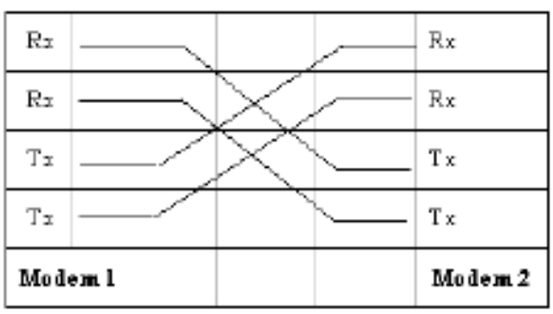
Mechanical Specifications

Enclosure: ABS with removable top cover
Dimensions: 4.1” wide x 4.9” long x 1.40” high
Specifications
25
Weight: 0.5 lbs without AC to DC power converter module
Interface connectors
Leased Line: 4-position RJ-11C modular Jack
Data Terminal Equipment: DB-9 female connector (for RS-232)
RJ-11C module jack (for RS-485)

Interface Connector Pin Assignments

Leassed Line RJ11C Pin Assignments	
Pin #	**Signal**
1	Not Used
2	TX
3	TX (TX/RX)
4	TX (TX/RX)
5	RX
6	Not Used

Back-to-Back Connection to a Second Modem



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RS-232 (DTE) Interface

Signal Name	Modem Input/Output	DB9 Pin	Description
DCD	OUTPUT	1	Data Carrier Detected
RXD	OUTPUT	2	Receive Data
TXD	INPUT	3	Transmit Data
SG		5	Signal Ground
DSR	OUTPUT	6	Data Carrier Detected
RTS	INPUT	7	Request To Send
CTS	OUTPUT	8	Clear To Send

RS-485 (DTE) Interface

RJ11 Pin Number	Corresponds to Sgnal Name	Modem Inpt or Output
1	Not Used	NA
2	RxD+	Output
3	RxD-	Output
4	TxD+	Input
5	TxD-	Input
6	Not Used	NA

Environmental Specifications

Operating temperature: -40 to + 85 Degrees Celsius
Storage temperature: -40 to +125 Degrees Celsius
Operating humidity: 5 to 95 %, non-condensing
Line isolation: 3750 V RMS
Surge protection: Leased line up to 15K VA

Data Connect Modem Polling performance with twisted-pair cables

Product in Test	Data Rate	Cable Equalizer select Option	Operating over TELCO Leased Lines	Operating Distance w/ 26 AWG cable	Operating Distance w/ 24 AWG cable
IG202T/V23	1200 bps	Disabled	Yes	100,000 FT **(18.94 miles)**	125,000 FT **(23.67 miles)**
	1200 bps	TX & RX Enabled	Yes	140,000 FT **(26.52 miles)**	175,000 FT **(33.14 miles)**
IG202T/V23	300 bps	Disabled	Yes	130,000 FT **(24.62 miles)**	162,000 FT **(30.68 miles)**
	300 bps	TX & RX Enabled	Yes	182,000 FT **(34.47 miles)**	227,000 FT (**42.99 miles)**

Test conditions:
1) Point-to-point, full duplex, switched carrier is used.
2) Test message is the FOX message
3) Polling error to be less than 1 in 1000 polls.

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Modem Switch Settings		
DIP Switches	SWITCH SETTINGS	
	ON	OFF (Default)
DIP Switch S1		
SW1-1: Auto RTS	Enable	Disable
SW1-2: RTS-CTS Delay (Bell 202 mode only)	33ms	10.0 ms (Bell 202T) 33 ms (V.23 mode)
SW1-3: Flow Control	Constant ON	Controlled by RTS
SW1-4: Soft Carrier (Bell 202 mode only)	Enable	Disable
SW1-5: Anti-streaming	Enable (30 Seconds)	Disable
SW1-6: 2- or 4-wire leased line	2-wire half duplex	4-wire full duplex
SW1-7: Transmitter Termination	Controlled by RTS	600 ohms
SW1-8: Receiver Termination	600 ohms	High (approx 20K)

S-232 or RS485 Select	
RS-232/ V.24 Interface	RS485/RS422 Interface
JP2: Pin 1 to Pin3 Pin 2 to Pin 4	JP2: Pin 3 to Pin 5 Pin 4 to Pin 6

Transmit Levels	
Transmit Level	**JP1 Jumper Settings**
0 dBm	Pin 1 to Pin 2
−4 dBm	Pin 3 to Pin 4
−8 dBm	Pin 5 to Pin 6
−12 dBm	Pin 7 to Pin 8