

9600 FP Modem

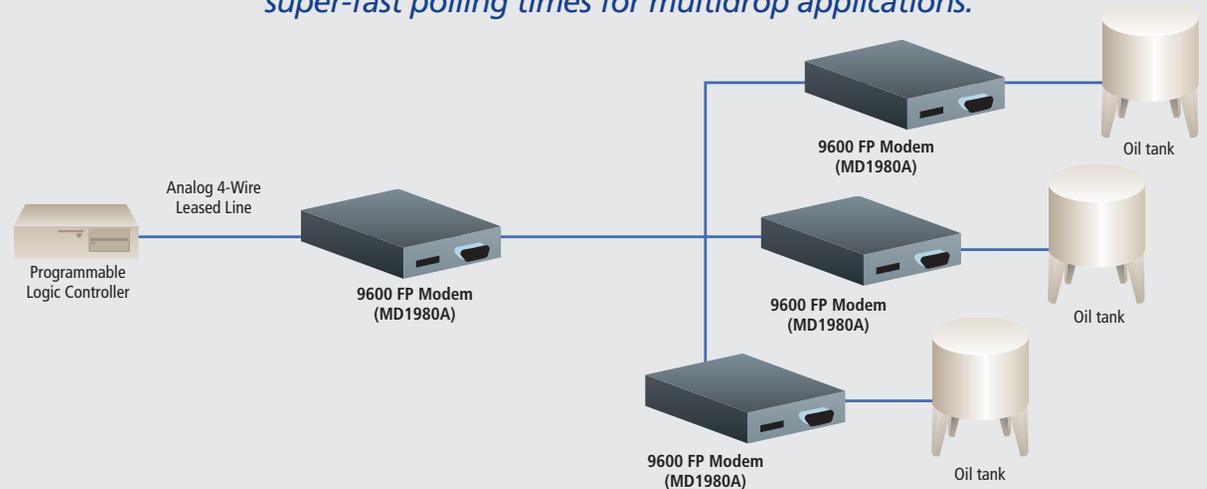


**A flexible, industrial-grade modem
for multiple drops.**

FEATURES

- Dual mode: Use in both 1200-/1800-bps and 9600-bps environments.
- Ideal for collecting data from modem banks in large polled networks.
- Connects to 4-wire full duplex or 2-wire half-duplex over voice leased line.
- Surge-protected line interfaces.
- Poll-response time of 23 ms.
- Configure easily with DIP switches.
- Standalone and rackmount card versions available.

These modems work in extreme conditions and provide super-fast polling times for multidrop applications.



OVERVIEW

If you have a large polled network that uses 1200- or 1800-bps speeds and want to upgrade incrementally to 9600 bps, then the 9600 FP Modem is for you.

This industrial-grade, leased-line modem features two modes of operation: Fast Poll Mode for 9600- and 4800-bps uses and Bell 202T Mode for up to 1800-bps speeds.

Because it's backward compatible with 202T devices (as well as ITU-T V.23 modems), you can extend the life of your existing hardware and worry about upgrading later. For this reason, it's the perfect transitional modem for multidrop automation applications in industrial settings. You can use the 9600 Modem, for instance, to communicate with Bell 202T remote modems that perform well enough now but will eventually be replaced with 1200/1800 models.

Typical applications are to use the 9600 FP Modem for system control and data acquisition (SCADA) or for communicating with utility substations or industrial facilities. Because the modem requires no human intervention for it to operate, it's particularly well-suited for unmanned locations.

You can use the 9600 FP Modem for 4-wire, full duplex or 2-wire half-duplex operation over a voice-based leased line. It works with both voice-band conditioned or unconditioned leased line and pilot wires, and features selectable asynchronous data rates of 9600 and 4800 bps in Fast Poll Mode and 0 to 1800 bps in Bell 202T Mode.

The modem features a DSP chip set and powerful line equalizers. These enable reliable operation over long runs of copper wire and leased telco lines that don't meet conventional specifications and offer limited performance.

Designed specifically for outdoor use and harsh environments, the 9600 FP Modem works where other modems don't, permitting more drops per polled link than any other modem.

Digital signal processing (DSP) technology gives the modem its power. With its fast turnaround—23 ms—in Fast Poll Mode, the 9600 FP Modem ideally suits systems that require fast response, short training time, and low throughput delay.

It's available in an AC or a DC standalone version or a card version for use in our Modem Rack II. The rackmount version occupies only one rack slot.

Both standalone and card versions feature heavy-duty surge protection that guards the line interface and can withstand a surge voltage up to 15 kV.

To configure the 9600 FP Modem, simply set a few DIP switches. Because no PC is required, it's easy to set up in the field. Configure the modem for your host DTE interface and network topology; select your mode and (if necessary) whether you're connecting to a Bell 202T or ITU-T V.23 modem; then choose the transmitter output level and receiver dynamic range.

Troubleshooting is also easy. An LED control display on the 9600 FP Modem gives you at-a-glance confirmation of modem operation, and a local and remote test push button enables you to perform analog or digital loopbacks.

For attaching DTE devices, the modem's back panel has a DB25 connector on an RS-232 interface.

The Modem Rack II has slots for 16 modem cards and a power supply module (which is included) and can be mounted



MD1980A

in a standard 19" (48.3-cm) rack. It's 7" (17.8 cm) high and 10" (25.4 cm) deep. In back, the rack has 16 DB25 female connectors and 16 telco connectors.

Because the rack's front panel is hinged, you can add and remove cards from the front of the unit without disturbing the DTE and line connections at the rear of the rack.

The front panel is also translucent, so you can easily view the LEDs on the front of the cards. To access a card's test push button to perform loopbacks, just lower the front panel.

When you order a modem, you'll receive the Standalone or Rackmount Card 9600 FP Modem, a leased-line cable, and a user's guide. The MD1980A-DC also includes a shielded DC power cable.

With the rack (RM421A), you get a 115-VAC, 60-Hz power supply module; a -48 VDC module is available by special order.

Why Buy From Black Box? Exceptional Value. Exceptional Tech Support. Period.

Recognize any of these situations?

- You wait more than 30 minutes to get through to a vendor's tech support.
- The so-called "tech" can't help you or gives you the wrong answer.
- You don't have a purchase order number and the tech refuses to help you.
- It's 9 p. m. and you need help, but your vendor's tech support line is closed.

According to a survey by Data Communications magazine, 90% of network managers surveyed say that getting the technical support they need is extremely important when choosing a vendor. But even though network managers pay anywhere from 10 to 20% of their overall purchase price for a basic service and support contract, the technical support and service they receive falls far short of their expectations—and certainly isn't worth what they paid.

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TECH SPECS

- Cable Equalizer** — Fixed transmitter and receiver cable equalizer, selectable
- Carrier Control** — Constant or switched (DIP-switch-selectable)
- Carrier Loss Recovery** — Built-in train on data (typically < 10 seconds)
- Data Format** — 8 or 9 data bits with 1 or more stop bits
- Equalizer** — Automatic, adaptive
- Line Requirement** — Telco voice band 4- or 2-wire leased line private metallic circuits (26 to 19 AWG)
- Modulation** — Fast Poll Mode: Proprietary; Bell 202T Mode; FSK
- Operation** — 2-wire half-duplex or 4-wire full duplex
- Receiver Dynamic Range** — +3 to -30 dBm or -10 to -43 dBm (DIP-switch-selectable)
- Speed** — Fast Poll Mode: 9600 or 4800 bps asynchronous; Bell 202T Mode: 0 to 1800 bps asynchronous; Bell 202T Mode: 8, 33, 59, 219 ms
- Surge Protection** — Up to 15 kV
- Training Time** — RTS to CTS delay: Fast Poll Mode: 23 ms
- User Controls** — (1) Test push button for local analog loopback, local digital loopback, or remote digital loopback; (2) 8-position DIP switches (SW1 and SW2) and (1) 10-position DIP switch (SW3)
- Connectors** — Leased line: (1) 4-position screw terminal; DTE: (1) DB25 F (RS-232); Power: (1) 3-position terminal block
- Indicators** — (9) LEDs for status monitoring: Power (PWR), Request to Send (RTS), Clear to Send (CTS), Transmit Data (TXD), Receive Data (RXD), Carrier Detect (CD), Modem Ready (MR), Analog Loopback (ALB), Digital Loopback (DLB)
- Temperature Tolerance** — MD1980A, MD1980A-DC: -40 to +185°F (-40 to +85°C); MD1980C in Modem Rack II: Operating: 32 to 114°F (0 to 45°C); Storage: -40 to +176°F (-40 to +80°C)
- Humidity Tolerance** — MD1980A, MD1980A-DC: 5 to 95%, noncondensing; MD1980C in Modem Rack II: Up to 95%, noncondensing
- Power** — MD1980A: 85–265 VAC, 50–60 Hz, autosensing or 85–400 VDC with power cord modification; MD1980A-DC: 10–53 VDC; MD1980C: From the Modem Rack II (RM421A) chassis
- Size** — MD1980A, MD1980A-DC: 1.5"H x 5.7"W x 8.3"D (3.8 x 14.5 x 21.1 cm); MD1980C: 6.25"H x 9"W x 0.9"D (15.9 x 22.9 x 2.3 cm)
- Weight** — MD1980A, MD1980A-DC: 1.9 lb. (0.9 kg); MD1980C: 0.5 lb. (0.2 kg)

Item	Code
9600 FP Modem Standalone	
AC	MD1980A
DC	MD1980A-DC
Rackmount Card	MD1980C
To rackmount your MD1980C, order...	
Modem Rack II	RM421A