



SMP 16/SP Substation Processor

The SMP 16/SP is a substation-grade computer designed for Microsoft® Windows® operating system-based applications that demand extreme reliability. Its flash memory and extended operating temperature range, combined with the absence of any fans or moving parts, provides a reliable computing platform while requiring minimum maintenance.

The extended communication capabilities such as the 16 universal serial ports (with IRIG-B distribution for an improved time synchronization of the connected devices) and its 2 copper/fiber Ethernet cards make it a complementary tool to enhance your integration or automation solutions.

The SMP 16/SP computing platform is ideal for a substation Human Machine Interface (HMI), such as the Visual T&D software. Combined with this application, the system provides temperature and power statuses monitoring and alarming, and manages its 2 relay contacts to provide system health and alarm buzzer features on external devices. Moreover, with Visual T&D, the serial ports can be used in RS-422/485 mode for extended IED connectivity.

Additionally, the system can be time-synchronized using an external modulated/demodulated IRIG-B clock or using its optional GPS clock, and can then act as an IRIG-B clock to synchronize other devices. The SMP 16/SP Substation Processor can be provided with an optional hard disk, which allows Visual T&D to efficiently record large amounts of historical data.

Key Features and Benefits

- Built to conform to high rugged standards
- Substation grade-compliant to IEEE Std C37.90TM-1989 and IEC 60255 for operation in harsh environments
- No moving part, results in increased Mean Time Between Failures (MTBF) and reduced maintenance requirements.
- Supports both copper and fiber connections on its 2 Ethernet ports
- Uses industry-standard ST fiber optic connectors
- Built-In IRIG-B synchronization and distribution
- Optional built-in Global Positioning System (GPS) clock for more accurate event-time stamping and sequence of events (SOE) recording
- Optional industrial-grade hard disk (40 GB) for extended storage
- Optional video unit for local or remote (up to 250m via optical fiber) HMI interface capability (keyboard, mouse, and up to four screens for display)
- Watchdog processor for an improved reliability of applications operating on the SMP 16/SP computer by rebooting automatically in case of malfunction

SMP 16/SP Computer with Visual T&D

The SMP 16/SP computer combined with the Visual T&D software offers a highly-reliable HMI that includes the following features:

- Email and pager alarm notification
- Real-time data trending
- Single-line diagrams with control capabilities
- Sophisticated alarm features
- Integrated and automatic Power status and Temperature monitoring and alarming
- Manages the 2 relay contacts to provide system health and alarm buzzer features on external devices

SMP 16/SP Substation Processor

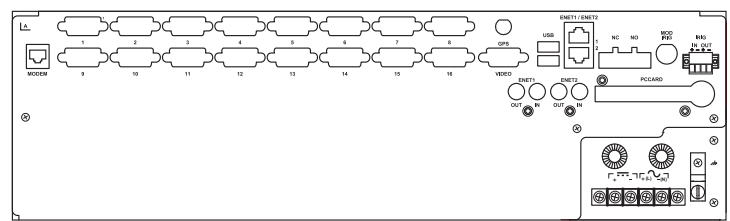
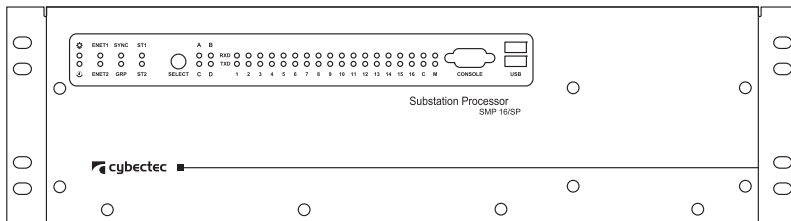
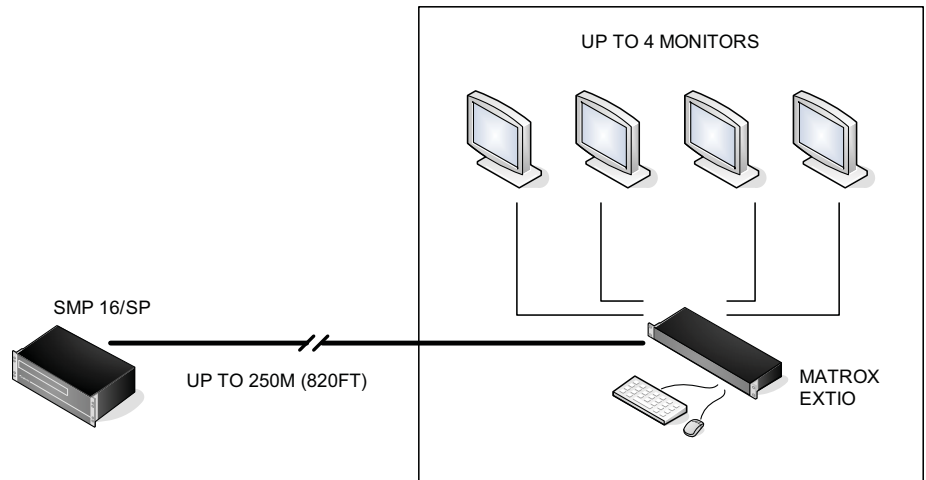
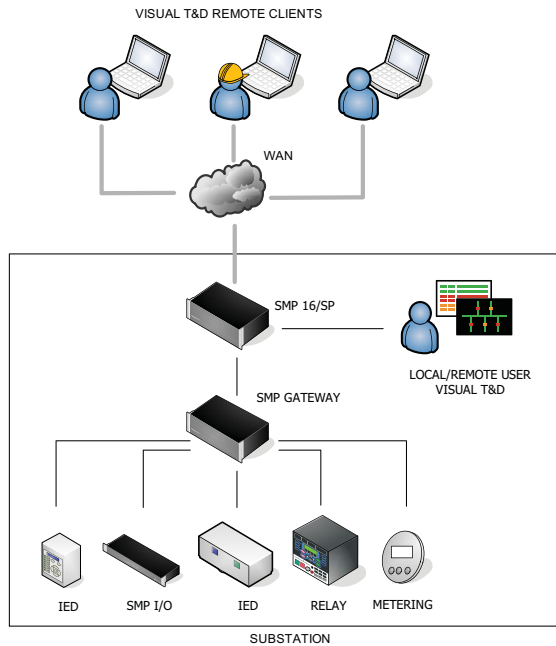
Technical Specifications

| General Features |
|--|
| 1.4 GHz Pentium-M processor |
| 512 MB RAM |
| 8 GB flash drive, industrial grade |
| 512 KB NVRAM |
| 4 USB 2.0 ports |
| Cable retainers on USB ports |
| Built-in watchdog timer |
| Hardware diagnostics |
| On board VGA 2048x1536 |
| Optional Hardware |
| 40 GB hard-disk industrial grade for non-critical data logging ¹ ¹ Operating temperature : -20°C to +65° |
| RAM upgrade to 1 GB |
| Matrox Extio™ video unit ¹ (XTO-F1400F model with XTOA-FP66LPAF card) ² ¹ Operating temperature: -20°C to +65°C ² Operating temperature: -20°C to +55°C Note: ESD compliance: 4kV |

| Environmental |
|---|
| Operating (at CPU 100% usage): -40°C to +65°C (-40°F to +149°F) |
| Storage: -40°C to +85°C (-40°F to +185°F) |
| Industrial-grade hard-disk: -20°C to +65°C (-4°F to +149°F) |
| Humidity: 5 to 95%, non-condensing |
| Low pressure (operation and storage altitude): Up to 4572 m (15,000 ft) ¹ MIL-STD-810G Method 500.5 Procedure I and II |
| Visual T&D |
| Take advantage of additional Visual T&D capabilities when installed on the SMP 16/SP No hardware dongle Power status monitoring and alarming Temperature monitoring and alarming |
| I/O |
| 1 NC system health contact |
| 1 NO software-controlled relay contact |

| Communications |
|---|
| Serial: 16 universal (RS-232/422/485) ports with IRIG-B distribution |
| Ethernet: 2 10/100BASE-TX, or 2 100BASE-FX optional Multimode Fiber ST Connector 1300 nm Up to 2 km |
| Modem: Built-in 56 kbps V.90 modem |
| Standards Compliance |
| Protective Relay Standards IEEE C37.90 IEC 60255 |
| EMI Immunity Type Tests & Specifications IEC-61850-3 IEEE-1613 |
| Telephone Terminal Equipment Specifications TIA-968-A CS-03 |
| Unit test list available on demand |

| Time Synchronization |
|--|
| Optional built-in GPS clock |
| IRIG-B time synchronization and distribution for connected devices |
| Electrical |
| Power supply options 21-29 VDC 42-56 VDC 85-264 VAC / 105-370 VDC Terminal block connector |
| 50 W consumption |
| Lifetime built-in battery |
| Mechanical |
| 3U 5.22 in. H × 19 in. W × 11.02 in. L 132.6 mm H × 482.6 mm W × 280 mm L 9 kg / 20 lbs |
| Warranty |
| 5-year limited |



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