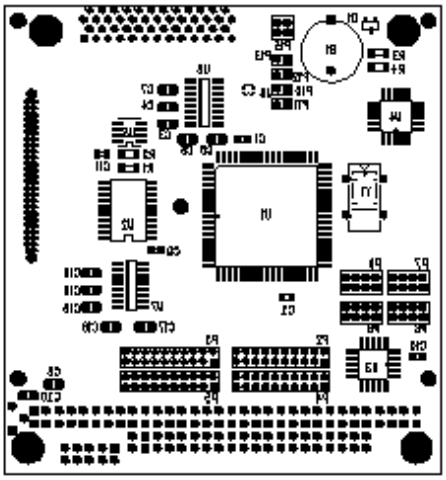
Zeli Systems
SATPAK-104PLUS-FORCE22



Solder-Side Shown

Precise Position Service (PPS) GPS Solution for the PC/104 bus

Features:

- The SATPAK-104PLUS-FORCE22 is a carrier board that provides a PC/104 interface for the Precise Position Service (PPS) military Trimble FORCE22 GPS receiver module.
- Employs a PC16554 Quad Universal Asynchronous Receiver Transmitter (QUART) to provide a standard COM port interface to each of the three serial communication channels of the FORCE22. The fourth unused COM port of the QUART is provided for any user-defined function.
- Simple jumper selection of I/O communication port base address (COM1, COM2, COM3, or COM4) and interrupt level (IRQ3-IRQ7, IRQ10-IRQ12, IRQ14, or IRQ15) for each of the four COM ports on the SATPAK-104PLUS-FORCE22.
- The SATPAK-104PLUS-FORCE22 provides access to all the FORCE22 capabilities including: 12-Channel, L1/L2, DS-102/DS-101 key loading, SAASM, 1PPS/10PPS/UTC/Time Mark, Have Quick interface, optional SINCGARS interface, PVT Output, navigation capability, ICD-GPS-153 interface, Differential GPS interface, NMEA interface, Trimble Diagnostic interface, and 3 serial communication channels.
- Primary FORCE22 voltage is +5 VDC provided by the PC/104 Bus power pins.
- Backup voltage for the FORCE22 is provided by a rechargeable lithium battery. Backup voltage is used to preserve cryptovariables, maintain the low-power time source, and maintain non-volatile RAM.
- A single 50-pin right-angle male header is provided for DS-102/DS-101 Key Loading, SA-AS loading, Have Quick Interface, Optional SINCGARS interface, Differential GPS Interface, 1PPS/10PPS outputs, and time maintenance power.
- Additional 10-pin right-angle header is provided for the RS-232 user defined COM port I/O.
- The Trimble FORCE22 incorporates Selective Availability Anti-Spoofing Module (SAASM) technology.
- Custom cable assemblies available for Have Quick, SINCGARS, Differential GPS interface, and KYK-13, KOI-18, AN/CYZ-10 key loading devices.

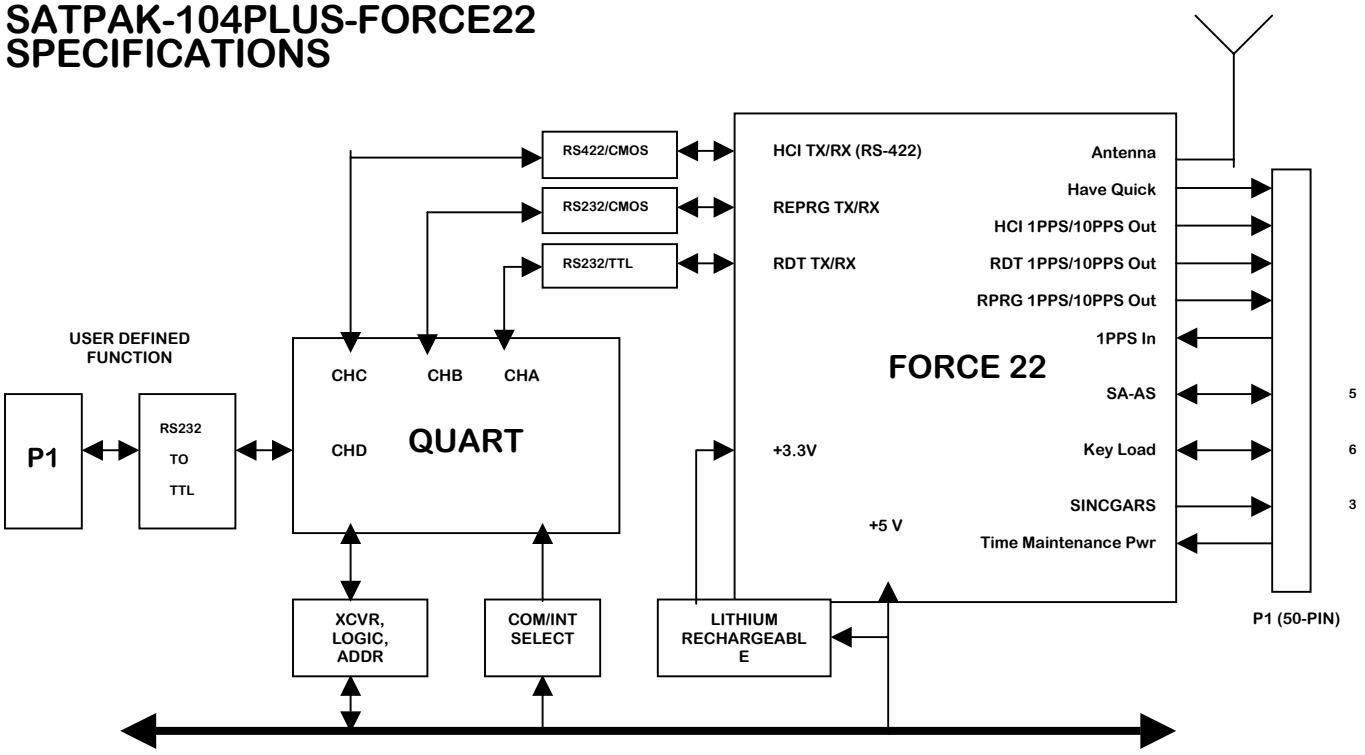
SATPAK-104PLUS-FORCE22 Function: The SATPAK-104PLUS-FORCE22 is an advanced version of the popular SATPAK-104PLUS that is specifically tailored to accommodate the Trimble FORCE22 GPS receiver module. The FORCE22 is a military Precise Position Service (PPS) GPS receiver that provides 12-channel tracking, L1/L2, DS-102/DS-101 key loading, SAASM, 1PPS/10PPS/UTC/Time Mark, Have Quick interface, optional SINCGARS interface, PVT output, navigation capability, ICD-GPS-153 interface, Differential GPS interface, NMEA interface, Trimble Diagnostic interface, and 3 serial communication channels.

Communicating with the Trimble FORCE22: The FORCE22 utilizes three (3) independent serial interfaces. The RS-232 and RS-422 signal levels for the three serial interfaces are converted to TTL and then transmitted and received over the PC/104 bus using an industry standard PC16554 quad universal asynchronous receiver transmitter (QUART). The fourth unused port of the QUART can be dedicated to any user-defined function. Each of the serial interfaces appears as a simple COM port and can be selected for COM1, COM2, COM3, or COM4 base addresses using simple push-on jumpers. The associated PC/104 bus interrupt for each COM port can be selected from IRQ3-IRQ7, IRQ10-IRQ12, IRQ14, or IRQ15. A single 50-pin right-angle male header is provided for DS-102/DS-101 key loading, SA-AS loading, Have Quick interface, Optional SINCGARS interface, Differential GPS interface, 1PPS/10PPS outputs and time maintenance power. An additional 10-pin right-angle header is provided for the RS-232 user defined COM port I/O.

Mechanical Considerations: The FORCE22 measures 3.139" x 3.823", and is mounted to the SATPAK-104PLUS-FORCE22 as a daughter card. All serial interface components are located on the solder-side of the SATPAK carrier. This concept utilizes most of the available PCB real estate and obscures the PC/104 mounting holes opposite the PC/104 connector on the component-side of the PC/104 module. The SATPAK-104-PLUS-FORCE22 with the attached FORCE22 can be mounted on the PC/104 stack using standard 0.6" male/female standoffs, but should be positioned as the last (top) module on the PC/104 stack.

Zeli Systems
Phone (915) 751-3222
3233 Pagosa Ct., El Paso, TX 79904
FAX (915) 751-3222

SATPAK-104PLUS-FORCE22 SPECIFICATIONS



Mechanical, Environmental, Power:

Physical Dimensions:	3.823" x 3.775" (with FORCE22 attached) 3.550" x 3.775" (without FORCE22 attached)
Operating Temp:	-40°C to 80°C
Humidity:	0 to 99% (non-condensing)
Power:	+5V +/- 5%, 0.060 A (without FORCE 22) +5V +/- 5%, 0.660 A (with FORCE 22)
Fabrication:	0.074" +/- 0.008", FR4

Interface Connectors:

FORCE22 I/O:	J3
Conn:	FORCE22 MATING CONNECTOR
Type:	SAMTEC SFML-125-T1-S-D-LC
FORCE 22 I/O:	P14
Conn:	FORCE22 RIGHT-ANGLE IMAGE 0.050" CONNECTOR
Type:	HIROSE PN: HIF6A-50PA-1.27DSA (HIROSE MATE: HIF6-50D-1.27R)
SPARE PORT:	P1
Conn:	User-Defined
Type:	0.1" dual-row, 10-pin, right-angle

Connectors:

GPS Antenna:	Trimble FORCE22 Connector P1
Conn:	MMCX
Type:	Coaxial
GPS Aux Antenna:	Trimble FORCE22 Connector P2
Conn:	MMCX
Type:	Coaxial
Ext Osc Input:	Trimble FORCE22 Connector P3
Conn:	MMCX
Type:	Coaxial

Ordering Information:

Use the part numbers below to order the SATPAK-104PLUS-FORCE22.

SATPAK-104PLUS-FORCE22-00 (FORCE22 with 3.3V antenna drive, internal TCXO, and CMOS levels on the RDT/IP and REPRG ports)

SATPAK-104PLUS-FORCE22-20 (FORCE22 with 5.0V antenna drive, internal TCXO, and RS-232 levels on the RDT/IP and REPRG ports)

SATPAK-104PLUS-FORCE22-05 (FORCE22 with 5.0V antenna drive, external TCXO, and RS-232 levels on the RDT/IP and REPRG ports)

SATPAK-104PLUS-FORCE22-25 (FORCE22 with 3.3V antenna drive, internal TCXO, and RS-232 levels on the RDT/IP and REPRG ports)

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