Tracewell Systems

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Data Sheets

# Tracewell S21 for VME

## 12-21 Slot VME Rackmount System

## Description

The Tracewell S21 is designed for VMEbus applications requiring additional power and cooling capacity. Rugged construction and a host of available features make the Tracewell S21 ideal for any commercial or industrial requirements.

The core of the Tracewell S21 is its rugged construction consisting of a formed steel cardcage, 0.125" thick aluminum sides and extrusion frame, providing strength without excessive weight. Three 130cfm high-pressure fans draw filtered air through large intake and exhaust passages, minimizing chassis restriction and improving airflow. Front-to-rear airflow allows units to be stacked for 19" rack or bench-top operation, without effecting cooling performance. System power includes either 500 or 750 watts with universal input and power factor correction. A standard hinged rear panel provides easy access to the power supply and all internal wiring. The Tracewell S21 is available in two chassis sizes supporting 6U or 9U card sizes. Both 12 and 21 slot backplanes are offered, providing 32 and 64-bit support, auto-configuration and SMD/ press-fit assembly for speed and reliability. A recessed cardcage and internal cableway allows sufficient cable bend radius inside an optional front cover and easy routing to the rear I/O panel. Other options include a front storage bay housing up to four 5.25" half-height devices and rack slides.

Available in several standard configurations, The Tracewell S21 is the perfect choice for both new and existing VMEbus requirements.

## Features

- Rugged steel and aluminum construction
- Stackable 19" rack or bench-top operation
- Three 130cfm high-pressure fans for cooling
- 500W or 750W power supplies with PFC
- 12 or 21 slot 6U backplane
- Auto-configuring backplane is 32/64 bit compatible
- Storage bay for four (4) 5.25" devices available
- Hinged rear access panel and removable I/O panel
- Tinted removable front cover
- Internal cableway and recessed cardcage

ISO 9001 certified

# Specifications

## Physical

**Option code T1:** Tracewell S21 Type 1, 6U x 160mm
**Option code T2:** Tracewell S21 Type 2, 9U x 400mm
**Option code RS1†:** Rack-slide set; non-pivoting, detachable, ball bearing

**Construction:** Sheet aluminum, 5052-H32 alloy; right and left sides (0.080"), top and bottom covers (0.062"), rack flanges (0.100"), rear panel (0.050") Sheet steel, ASTM A366; front upper/lower cardcage (0.060") Aluminum extrusion, 6101-T6 alloy; cardcage front profile and all cross members
Cardguide, snap-in, 0.062" pcb thickness, white nylon, UL 94V-2 flame rated material
Optional front panel, gray polycarbonate, UL-94HB material

**Cardcage††:** Front loading, recessed 2.5" (64 mm), 21 slots maximum, IEEE 1101.1 compliant
(T1) 6U x 160mm; (T2) 9U x 400mm

**Dimensions:** (T1) 21.0"D (533 mm),19.00" W (483 mm),15.75"H (400 mm)
(T2) 26.0"D (660 mm),19.00" W (483 mm),21.0"H (533 mm)

**Weight:** (T1) 45 lbs. (20.5 kg)
(T2) 60 lbs. (27.3 kg)

**Finish:** Textured paint, light gray per Sherwin Williams F63TXA9008; all exterior surfaces; All other aluminum is brushed gold chromate per MIL-STD 5541, steel is bright zinc plate

**Rack-Slides (RS1):** Option includes machined side plates, provided installed
Length: 24" (T1), 26" (T2); 2" rear bracket kit provided; Overall load <125 lbs.

**Front cover:** Optional removable protective front panel attaches with (6) thumbscrews, tinted polycarbonate with aluminum frame

## Backplane

**Option code B1:** 21 slot, VME 32/ 64 bit, J1-J2 monolithic, 96 pin DIN
**Option code B2†††:** 12 slot, VME 32/ 64 bit, J1-J2 monolithic, 96 pin DIN; installed left-justified in cardcage

**Bus structure:** VME 32/64 bit
**Assembly:** SMT/press-fit assembly
**Layer count:** 8 layers
**Control:** Active automatic bus-grant and IACK jumpering
Active termination

**PCB construction:** FR4 epoxy-glass laminate, multilayer, all-stripline, SMOBC, silkscreen on two sides, 1oz. copper signal and power planes minimum, UL94V-0, 0.125" (3.18mm) pcb thickness

**Impedance:** 50 Ohms nominal on all signal lines, non-loaded pcb
**Termination:** Active onboard, electrically inboard; Thevinin equivalent to 194 Ohms at 2.94V
**Decoupling:** High frequency decoupling at each slot (0.1F SMD ceramic); Bulk distributed low frequency (100F SMD Tantalum)

**Rear tails and shrouds:** Extended tails J1 first slot, J2 all slots
Shrouds J1 first slot, J2 first and last slots

**DC distribution:** Power bridges for +5VDC and return (140A rating), power bolts for +/-12VDC (70A rating)
**Compliance:** VITA Rev. C.1

## Power

**Option codes PS1:** 500 Watt, AC input with PFC (available for T1 only)
**Option codes PS2:** 750 Watt, AC input with PFC

**Total output:** 500W (PS1), 750W (PS2); maximum all output combined
**Input:** 90 – 264VAC, universal input
**Frequency:** 47 – 63 Hz
**Efficiency:** 75% typical
**Power factor:** 0.99 with PFC
**Input current:** 8A at 90VAC; 3A at 230VAC (PS1);
12A at 90VAC; 5A at 230VAC (PS2)
**Inrush current:** 40A at 120VAC, 80A at 230VAC (PS1), 50A at 110VAC, 100A at 230VAC (PS2)
**Hold-up time:** 20 ms minimum after removal of power at full load
**ACFAIL:** Logic low signal asserted to backplane after removal of AC power
**DC outputs:** +5.0V/ 80A, +12V/ 20A, -12V/ 20A (PS1)
+5.0V/ 120A, +12V/ 12/20Apk, -12V/ 10A (PS2)
**Output adjust:** Outputs 1, 2, 3 adjustable +/-5% (PS1); outputs 1, 2 adjustable +/-5%, 3 tracks 2 (PS2)
**Ripple/noise:** Less than 1% peak-to-peak or 100mV, whichever is greater
**Load requirement:** Output 1 is >5A and 2, 3 is >1A
**Remote sense:** All outputs, 250mV maximum compensation
**Inhibit:** Global DC inhibit available (not wired)
**Temperature:** 25°C operating; 70°C non-operating
**Cooling:** (1) internal 30cfm fan (PS1), (2) internal 20cfm fans (PS2)

## Storage

**Option Code S1:** Front accessible storage bay supports (4) 5.25" half height devices (requires TI, B1)
**Power harness:** (4) 4-pin IDC, AMP 1-480424-0 or equivalent; (1) 4-pin IE (mini), AMP 171822-4 or equivalent
**Peripheral support:** (4) 5.25" half height devices
**Cooling:** Utilizes system airflow
**Accessibility:** Front removable storage module, tool accessible

## Cooling

**Airflow:** Front intake, rear exhaust, evacuated
**Fans:** Three 130 CFM, tube-axial, 12Vdc
**Air filter:** Front accessible, washable media, 30 PPI

## Control and Input

**Switches:** Front panel: AC on/off (rocker); backplane reset (pushbutton, momentary)
**Reset control:** 200mS debounced reset to backplane; asserted by front panel switch or VME module
**SYSFAIL:** Signal driven only by backplane VME modules; front panel LED is only a status indicator
**Indicators:** Front panel SYSReset, SYSFail (red), Power-on (green) LED indicators
**Power Input:** Rear panel AC inlet (IEC320) with fuse drawer, line cord provided
**Circuit protection:** Rear panel single pole fuse drawer, 12A delay 1.25" x 0.25" fuse, spare provided

## Environmental

**Temperature:** 0 – 50°C operating; -20 – 70°C non-operating
**Shock/ Vibration:** Basic transportation per ASTM 0775
**Humidity:** 5 – 95% non-condensing at 40°C operating,
0 – 95% non-operating
**Acoustic:** <55 dBa (1 meter)

## Agency Compliance††††

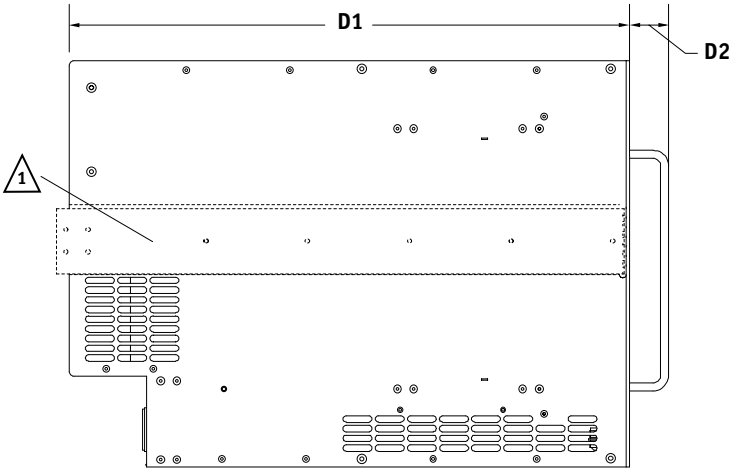
**Safety/Emissions:** Information available for power supply only
Consult factory for more details

## Warranty

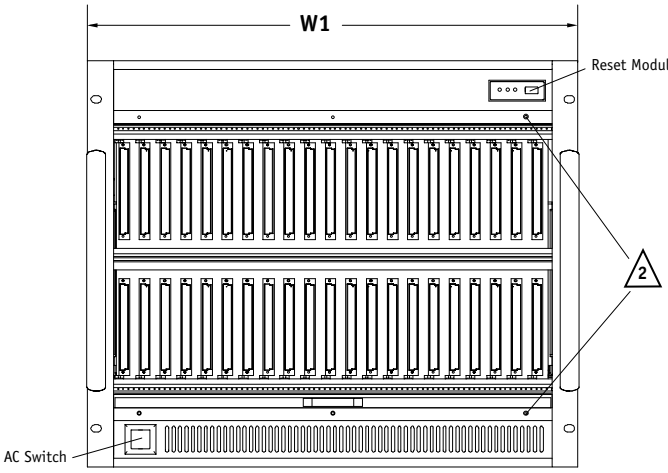
1 year limited warranty

## Drawings

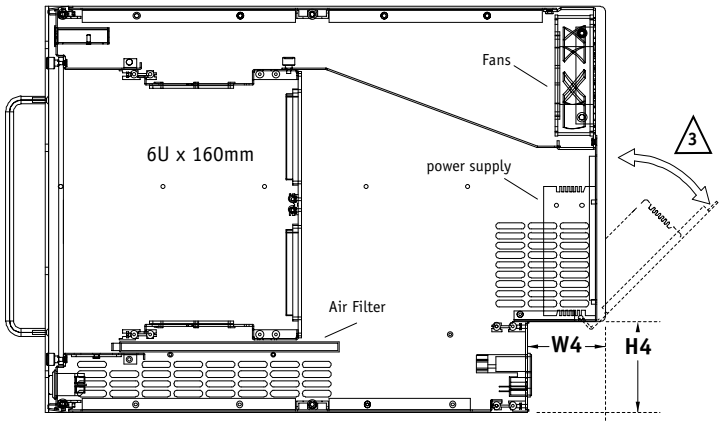
### Main Assembly (Type 1 shown)



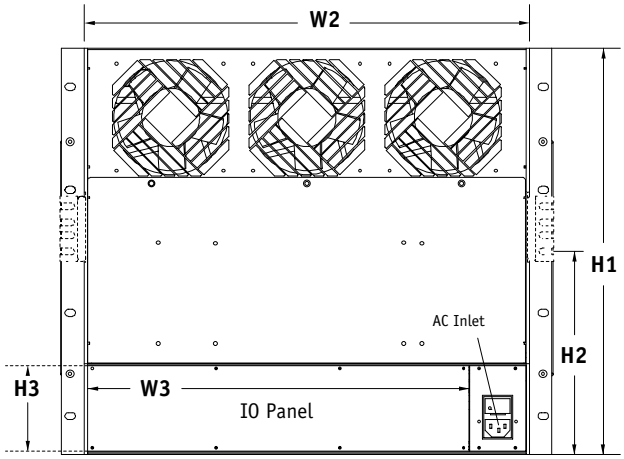

Left-Side View




Front View (front cover removed)

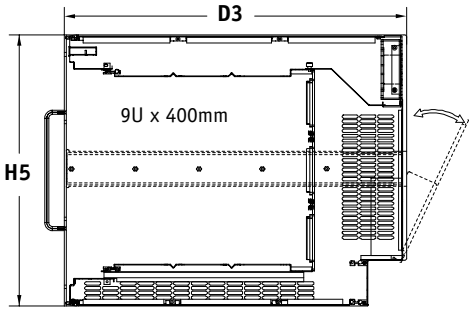



Right-Side View (Internal)

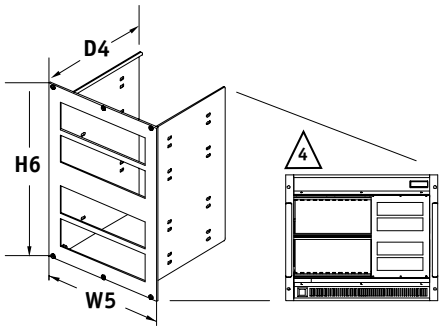



Rear View

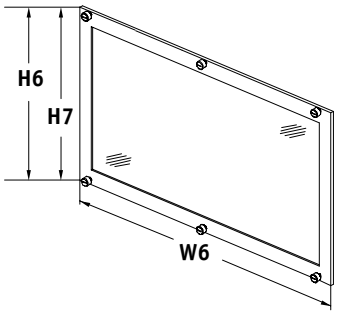
### Sub-Assemblies and Options




Right-Side View (Type 2, Internal)




Storage Bay (S1)




Front Cover Assembly

**Dimensions:**

D1: 21.70" (551 mm)
D2: 1.53" (39 mm)
D3: 26.51" (674 mm)
D4: 6.20" (158 mm)

W1: 19.00" (483 mm)
W2: 17.25" (438 mm)
W3: 14.78" (375 mm)
W4: 3.00" (76 mm)
W5: 7.27" (185 mm)
W6: 16.90" (424 mm)

H1: 15.72" (399 mm, 9U)
H2: 7.86" (200 mm)
H3: 3.31" (84 mm)
H4: 3.52" (89 mm)
H5: 20.96" (532 mm, 12U)
H6: 10.32" (262 mm, T1)
H7: 15.57" (395 mm, T2)

1. Installed optional rack slides (RS1) shown
2. Optional front cover installs with thumbscrews (6 places)
3. Hinged rear panel and power supply access shown
4. Optional storage bay (S1) installation shown

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## Ordering Information

The Tracewell S21 includes chassis, backplane, power supply and cooling per the following standard configurations:

| Part number | Description |
|---|---|
| 521-6000-F00-00 | Chassis (T1) w/21-slot VME backplane (B1), 500W power supply (PS1) |
| 521-6000-F01-00 | Chassis (T1) w/21-slot VME backplane (B1), 500W power supply (PS1), Rack-Slides (RS1) |
| 521-6000-F10-00 | Chassis (T1) w/12-slot VME backplane (B2), 500W power supply (PS1) |
| 521-6000-F11-00 | Chassis (T1) w/12-slot VME backplane (B2), 500W power supply (PS1), Rack-Slides (RS1) |
| 521-6000-F12-00 | Chassis (T1) w/12-slot VME backplane (B2), 500W power supply (PS1), Storage (S1) |
| 521-6000-F13-00 | Chassis (T1) w/12-slot VME backplane (B2), 500W power supply (PS1), Rack-Slides (RS1), Storage (S1) |
| 521-6001-F00-00 | Chassis (T1) w/21-slot VME backplane (B1), 750W power supply (PS2) |
| 521-6001-F01-00 | Chassis (T1) w/21-slot VME backplane (B1), 750W power supply (PS2), Rack-Slides (RS1) |
| 521-6020-F00-00 | Chassis (T2) w/21-slot VME backplane (B1), 750W power supply (PS2) |
| 521-6020-F01-00 | Chassis (T2) w/21-slot VME backplane (B1), 750W power supply (PS2), Rack-Slides (RS1) |

### Accessories

| | |
|---|---|
| 106-1001-099-01 | Non-shielded single-slot filler panel, 6U X 4T; installs in vacant slots |
| 121-6012-099-01 | Subrack air block, single slot; snaps into a vacant slot to block airflow |
| 121-6011-C00-00 | Removable front cover assembly, includes (6) 6-32 thumbscrews; fits option T1 |
| 121-6011-C01-00 | Removable front cover assembly, includes (6) 6-32 thumbscrews; fits option T2 |
| 070-9930-000-0P | Shroud, 96 pin |
| 070-9931-000-0P | Shroud latch |

### Notes

† Option RS1 must be specified with system order. Rack-slides cannot be added later to non-RS1 systems

†† Option T2 backplane is installed in J1/J2 (upper) portion of cardcage; no J3 backplane is provided. To maintain proper airflow, it is recommended that all cardcage slots (front or rear) be blocked with filler panels when not in use

††† Option B2 12 slot backplane is installed left justified with slot 1 aligned with left-most slot of the cardcage. (1) 9 slot (36HP) front filler panel and (9) air restrictors are installed in the remaining 9 slots (13-21) to direct airflow through slots 1-12. This option is not available with T2

†††† As an option, Tracewell Systems can evaluate agency compliance for the customer's specific integrated product Consult factory for more details





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