



Features

- **Capability** - dual internal pressure sensors pressure ranges from 0.4 to 10000 psig. Multi-function digital calibrator provides for pressure, current and voltage measurements
- **Precise Measurements** - 0.025% Full Scale pressure for most ranges; 0.015% of reading \pm 0.002 for current & voltage measurements
- **Temperature Compensation** - pressure measurement accuracy not de-rated over the temperature range of 15-35 deg C
- **Graphic Display** - Large graphic style LCD with backlight. Display can be configured to display up to 3 inputs simultaneously.
- **Pressure Switch Test** - Pressure switch testing routine facilitates setting of pressure switches
- **24 VDC Source** - Internal 24 V loop power supply can power a transmitter under test
- **Lower Power Consumption** - under typical usage greater than 35 hours battery life from four (4) standard AA cells
- **Versatile** -13 ranges available with each capable of displaying up to 15 Engineering Units
- **Communication** - streaming real-time RS-232 data output via special cable (optional)
- **Options** - PT100 RTD Temperature Probe, RS-232 cable, External Pressure Module Adapter and 28 External Pressure Modules



Accu-Star Pictured with Options

Product Description

The Accu-Star multi-function Digital Calibrator from 3D Instruments incorporates the ultimate in pressure and temperature measurement technology to address the calibration requirements of modern process monitoring and control instrumentation. The Accu-Star calibrator, with dual on-board sensors, provides unmatched pressure measurement flexibility over any competitive unit, setting new standards for accuracy and ease-of-use. The Accu-Star measures current to 24 mA and voltage to 30 VDC. An internal 24 VDC source provides powering capability for process instruments under test.

Outstanding isolated stainless steel pressure sensors from 0-5 to 0-10,000 psig provide for unmatched accuracy of 0.025% full scale on most ranges!! Non-isolated sensors extend pressure measurement down to draft pressure of 0.4 psi. To complement these sensors, an optional family of external pressure modules of varying types are available...PSIG, PSIA and PSID...extending the Accu-Star pressure measurement capabilities. An optional PT100 RTD probe allows for temperature measurements accurate to 0.1 deg C.

A large graphic LCD with oversized digits, high contrast and backlighting provides for superior resolution and excellent readability...even at a distance or in poor light or at a bad viewing angle!! The Accu-Star is housed in a robust ABS case. To reduce maintenance, low power circuitry provides for greater than 35 hours of battery life under typical usage from 4 AA batteries.

This high-end multi-function calibrator provides for numerous user-configurable features such as: Pressure Switch Test, % Error, Damping (smoothing of data on LCD) and "real-time" RS-232 communications via an optional cable.

The combination of sophisticated precision pressure and temperature measurement technology, robust design, ease-of-use, extensive feature set and a wide array of optional external pressure sensors makes the Accu-Star from 3D Instruments the ideal choice to tackle your demanding pressure, temperature, voltage and current test/calibration applications.

GENERAL SPECIFICATIONS

Accuracies:

- Pressure:
 - 15 psig to 3000 psig: ± 0.025% full scale
 - 5000 psig, 10000 psig: ± 0.035% full scale
 - 1 psig, 5 psig: ± 0.05% full scale
 - 0.4 psig: ± 0.1% full scale
- Current: ± 0.015% of reading ± 0.002 mA
- Voltage: ± 0.015% of reading ± 0.002 V
- Temp.: ± 0.015% of reading ± 0.02 ohms
(or ± 0.1 C@0 C for PT100)

Temperature effect:

No effect on accuracy on all functions from 15 C to 35 C. For pressure ranges above 5 psig and temperatures outside of 15 C-35 C, add ± 0.002% full scale/ C to readings on all functions. For pressure ranges 5 psig and below and temperatures outside of 15-35 deg C range, add 0.005% FS/deg C.

Ranges(psi)/Resolution(psi)/Proof Pressure(psi)

Range	Resolution	Proof Pressure
0-0.4 psig	0.4000	1
0-1 psig	1.0000	5
0-5 psig	5.0000	15
0-15 psig	15.0000	30
0-30 psig	30.0000	60
0-100 psig	100.00	200
0-300 psig	300.00	600
0-500 psig	500.00	1000
0-1000 psig	1000.00	2000
0-1500 psig	1500.0	3000
0-3000 psig	3000.0	6000
0-5000 psig	5000.0	10000
0-10000 psig	10000.0	15000

Ranges: (Calibrated)

- Pressure: 0-0.4 psig to 0-10,000 psig
- Current: 0 to 24.000 mA
- Voltage: 0 to 30.000 VDC
- Temperature: -40 C to 105 C (-40 F to 220 F)
resolution is 0.1 C (0.2 F)
(optional PT100 temperature probe required)

Over-Range Measurement Capability:

- Pressure: -2 psig to 120% full scale for ranges > 1psig
-1.20 to 1.20 for 1 psig range
-0.48 to 0.48 for 0.4 psig range
- Temp.: -43.0 C - 108.0 C
- Current: -0.100 - 24.100 mA
- Voltage: -0.100 - 30.100 VDC

Compensated Temperature:

15 C to 35 C (59 F to 95 F)

Operating Temperature:

-10 C to 50 C (4 F to 122 F)

Storage Temperature:

-20 C to 60 C (-4 F to 140 F)

Operating Media:

For ranges from 5-10,000 psig - all media compatible with 316SS and Nickel plated brass. For ranges below 5 psig - clean dry non-corrosive gases only - compatible with Nickel, Gold plated Kovar, silicone gel, gold wire, RTC, silicon and glass.

Power Requirements:

6.0 VDC, four (4) standard AA cells
>35 hours life under typical usage

Connectors/Ports:

- Pressure: two (2), 1/8" NPT female
- External Pressure Module/RS-232 Port
- RTD Temperature Probe Port

Physical:

- Dimensions: 8.3" H x 3.9" W x 1.8" D
- Weight: 1lb, 4 oz. (0.567 kg)

Materials of Construction:

- Case and External Pressure Modules ñ ABS
- Pressure Manifold Nickel Plated Brass
for ranges < 10k; 316 SS for 10K range

Engineering Units:*

psi, bar, mBar, kPa, MPa, kg/cm², cm H₂O@4 C, cm H₂O@20 C, in H₂O@4 C, in H₂O@20 C, in H₂O@60 F, mm Hg@0 C, in Hg@0 C, mm H₂O@4 C, mm H₂O@20 C

* -not all units are enabled for all pressure ranges

Auto Shut-Off:

1-30 minutes, user-defined

Temperature Probe: (Optional)

PT-100 ALPHA 385 Class iAi Specifications
9" sheath length with 3/16" O.D. - 1 foot retractable cable that expands to 5'

External Pressure Module Adapter: (Optional)

Connects external pressure modules to the Accu-Star. **Note:** required item if ordering external pressure modules.

External Pressure Modules: (Optional)

3D P/N	Range**	Accuracy(% FS)*
525EX-001	0-0.3 psig	0.1% Full Scale
525EX-004	0-1 psig	0.05% FS
525EX-009	0-5 psig	0.05% FS
525EX-011	0-7.2 psig	0.06% FS
525EX-013	0-10 psig	0.05% FS
525EX-021	0-30 psig	0.025% FS
525EX-018	0-50 psig	0.03% FS
525EX-023	0-100 psig	0.025% FS
525EX-024	0-150 psig	0.035% FS
525EX-026	0-300 psig	0.025% FS
525EX-027	0-500 psig	0.025% FS
525EX-029	0-1000 psig	0.025% FS
525EX-031	0-1500 psig	0.035% FS
525EX-033	0-3000 psig	0.05% FS
525EX-035	0-5000 psig	0.05% FS
525EX-038	0-10000 psig	0.1% FS(18-38 C)
52AEX-015	0-15 psia	0.05% FS
52AEX-021	0-30 psia	0.025% FS
52AEX-018	0-50 psia	0.03% FS
52AEX-023	0-100 psia	0.025% FS
52AEX-026	0-300 psia	0.025% FS
52DEX-009	0-5 psid	0.05% FS
52DEX-021	0-30 psid	0.025% FS
52DEX-018	0-50 psid	0.03% FS
521EX-021	-15-0-15 psig	0.05% FS
521EX-048	-15-0-30 psig	0.025% FS

*-Accuracy is FS over the temp. range 15-35 deg C

** -Over-Pressure spec ranges from 120 to 400%

Consult 3D datasheet KT-095 for additional details on external pressure modules.

ORDERING INFORMATION

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PART NUMBER: 52500 - XX D YY

Example: 52500-21D33

Accu-Star Digital Calibrator containing dual pressure sensors 30 PSIG/3000 PSIG both with 1/8" NPT female process connections. Standard includes with each Accu-Star: nylon soft-sided carrying case, Test Leads, NIST traceable Calibration Certificate and Manual

① Type of Calibrator:

52500 Accu-Star Pressure Calibrator with dual on-board pressure sensors

② Pressure Ranges Codes: (Use #2 for the lower of the two desired pressure ranges)

01: 0-0.4 PSIG	15: 0-15 PSIG	26: 0-300 PSIG	31: 0-1500 PSIG	38: 0-10000 PSIG
04: 0-1 PSIG	21: 0-30 PSIG	27: 0-500 PSIG	33: 0-3000 PSIG	
09: 0-5 PSIG	23: 0-100 PSIG	29: 0-1000 PSIG	35: 0-5000 PSIG	

③ Process connection:

D: 1/8" NPT female

④ Pressure Ranges Codes: (Use #4 for the higher of the two desired pressure ranges)

01: 0-0.4 PSIG	15: 0-15 PSIG	26: 0-300 PSIG	31: 0-1500 PSIG	38: 0-10000 PSIG
04: 0-1 PSIG	21: 0-30 PSIG	27: 0-500 PSIG	33: 0-3000 PSIG	
09: 0-5 PSIG	23: 0-100 PSIG	29: 0-1000 PSIG	35: 0-5000 PSIG	

⑤ Option Codes and Accessories:

- PT100 RTD Temperature probe - 3D Part Number: 2132-0001 (outfitted standard with a black hard-sided carrying case)
- RS-232 Cable - 3D Part Number: 2025-0010 (Approximately 4 foot long)
- External Pressure Modules part number provided above. Contact factory or 3D datasheet KT-095 for details on specifications.
- External Pressure Module Adapter - 3D Part Number: 2001-0092. (Note: required when using Accu-Star with External Pressure Modules)
- Handpumps 3 models available: Model 8110 Pneumatic (0-300 psi), Model 8111-300 Duplex (-13-300 psi) and Model 8112-3000 Hydraulic (0- 3000 psi)

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