

# AMPEX SP-300

## INSTRUMENTATION RECORDER

$\frac{1}{2}$ -INCH and  $\frac{1}{4}$ -INCH VERSIONS



$\frac{1}{2}$ -INCH VERSION



$\frac{1}{4}$ -INCH VERSION (IRIG track dimensions)

## PRELIMINARY PERFORMANCE SPECIFICATIONS

### General Description

The Ampex SP-300 is a new low cost portable instrumentation recorder designed specifically for industry, science, medicine and education. The  $\frac{1}{4}$ -inch version is available with four- or seven-track head configurations, and the  $\frac{1}{2}$ -inch version is available with a seven-track head. (IRIG track dimensions), other version with one to seven channels of electronics. Electronics are all-solid state amplifiers each of which contains all circuitry for record/reproduce, and Direct and FM recording techniques. A reel rotation counter is supplied as standard equipment on the  $\frac{1}{2}$ -inch version. The  $\frac{1}{4}$ -inch version can also be supplied with a reel rotation counter, if desired. For field installation of the counter on earlier models of the  $\frac{1}{4}$ -inch version, a kit is available. Full track erase, controlled by a separate front panel control, is provided on the  $\frac{1}{4}$ -inch version. The  $\frac{1}{2}$ -inch, like all IRIG recorders, does not include an erase head.

### Features

**Direct, FM and Audio Recording:** Combined all-solid state circuitry offers pushbutton selection of either Direct or FM recording and, by an internal jumper connection, audio recording.

**Four Speeds:** Tape speeds of 15 to 15 ips provided, all electrically switched by one front panel control.

**Date Channels:** Provides up to 7 channels of recording.

**Electrically Switched Amplifiers:** Each amplifier contains equalizers and frequency determining units for all tape speeds, electrically switched by the tape speed control; no plugins are required.

**Built-in Calibration:** Choice of four calibration voltages, positive or negative DC or AC.

**Individual Channel Meters:** Visual monitoring of all channels on both record or reproduce is provided by means of individual channel meters. The meters are also used for calibration.

**Erase Head:** Erases all tracks simultaneously, eliminating the need for a separate degasser ( $\frac{1}{4}$ -inch only).

**Ease of Operation:** All controls are on the front panel, in easily accessible, logical groupings. Operation is simple and straightforward; highly skilled electronic personnel are not required.

**Portable:** Measures only 22 $\frac{1}{2}$  x 13 $\frac{1}{2}$  x 20 inches; weight, approximately 90 pounds.

**Proven Transport:** The SP-300 incorporates the most thoroughly proven and reliable of all professional transports. Over 10,000 similar units in use in broadcasting stations and recording studios throughout the world.

### Tape Transport

**Tape Speeds:** 15, 7 $\frac{1}{2}$ , 3 $\frac{1}{2}$ , 1 $\frac{1}{2}$  ips standard, electrically switchable. The transport speed switch automatically selects the proper equalization or frequency determining network for each tape speed.

**Tape Speed Deviation:**  $\pm 0.2\%$  at 15 and 7 $\frac{1}{2}$  ips.  
 $\pm 0.4\%$  at 3 $\frac{1}{2}$  and 1 $\frac{1}{2}$  ips.

**Reels:** The SP-300 tape transport accommodates either 10 $\frac{1}{2}$ -inch NAB reels or 7-inch plastic reels for  $\frac{1}{4}$ -inch version; 10 $\frac{1}{2}$ -inch NAB reels for  $\frac{1}{2}$ -inch version.



## Tape Transport (continued)

**Tape Specifications:** 1 mil or 1½ mil polyester or acetate base. Type 631 tape is recommended for optimum performance. Stated performance is guaranteed only when using Ampex Tape.

**Controls:** Record, Play, Stop, Fast Forward, Rewind, Power, Reel Size and Erase (¼-inch only), Speed, Calibration Voltage, Meter Function, FM/Direct, Input Level.

**Fast Wind Time:** For 7-inch reel with 1800 feet of tape, approximately 1 minute. For 10½-inch reels, with 3600 feet of tape, approximately 1½ minutes.

## Heads

**Track Dimensions:** ¼-inch version: track width is 0.024 inch (0.061 cm); 4-channel track spacing 0.070 inch (0.168 cm) on center; 7-channel track spacing 0.035 inch (0.084 cm) on center.

½-inch version: track width is 0.050 inch; tape track spacing is 0.070 inch on center (IRIG Standard).

**Number of Tracks:** Up to 7 on ¼-inch or ½-inch version.

**Interstack Spacing:** 1½ inches (3.81 cm) nominal (¼-inch), 1½ inch (3.81 cm) ±0.0025 (±0.00127 cm) (½-inch).

## Direct Record/Reproduce System

Tape Speed	Bandwidth Interpolation*	Feed Pos. S/N (RMS signal to RMS noise)
15 ips	50 to 40,000 cps ±3 db	30 db
7½ ips	50 to 20,000 cps ±3 db	30 db
3½ ips	50 to 10,000 cps ±3 db	30 db
1½ ips	50 to 5,000 cps ±3 db	30 db

\*Audio equalization see table by jumper connection.

**Input Level:** 1.0 volt rms nominal (0 dbv) to produce normal recording level; adjustable from 0.5 to 10 volts rms by input potentiometer.

**Input Impedance:** Minimum 10,000 ohms resistive, unbalanced to ground.

**Output Level:** 1 volt rms nominal (0 dbv), DC coupled (capable of delivering 20 ma into short-circuit load).

**Output Impedance:** 100 ohms, ±20%, unbalanced to ground.

## FM Record/Reproduce System

Tape Speed	Frequency Response (±1 db)	RMS S/N Ratio	Total Harmonic Distortion
15 ips	0 to 2,500 cps	35 db	1.5%
7½ ips	0 to 1,250 cps	38 db	1.5%
3½ ips	0 to 625 cps	38 db	1.5%
1½ ips	0 to 312 cps	38 db	1.5%

**DC Drift:** Less than ±1.0% of full deviation over an 8 hour period, ambient temperature and line voltage constant, after 1 hour initial warmup.

**Record/Reproduce Voltage Linearity:** ±1.0% of full band (best straight line).

**Input Level:** Input of 1 volt rms (0 dbv) to produce ±40% deviation; operable from 0.5 to 10 volts rms by adjustment of input potentiometer.

**Input Impedance:** Minimum 10,000 ohms, unbalanced to ground.

**Output Level:** 1 volt rms nominal (0 dbv), DC coupled (capable of delivering 20 ma into short-circuit load).

**Output Impedance:** 100 ohms, ±20%, unbalanced to ground.

## Power Requirements

**Voltage:** 105 to 125 volts, single phase, 60 cps AC. Two universal voltage models: 90 to 130 volts or 200 to 240 volts, 50 cps AC; or 90 to 130 volts or 200 to 240 volts, 60 cps AC.

**Power Consumption:** ¼-inch version: approx. 250 watts; ½-inch version: approx. 300 watts.

## Environment (Preliminary)

**Temperature:** Operating: -1 to 44°C (30 to 110°F); Non-operating: -24 to 55°C (-10 to 130°F)

**Relative Humidity:** 0 to 85% without condensation.

## Physical Characteristics

**Portable Case:** 22½ inches high (57.15 cm), by 20 inches wide (50.80 cm), by 13½ inches deep (34.29 cm).

**Vertical Rack Space Required:** 21 inches (53.34 cm). May be removed from case and mounted in 19-inch rack.

**Weight:** ¼-inch version: approx. 90 lbs. (40.99 kg); ½-inch version: approx. 105 lbs. (45.20 kg).

## METRIC CONVERSION TABLES

Applicable to all Ampex recorders—specific items may not apply to the unit described in this sheet.

TAPE SPEEDS	1½	3½	7½	15	30	60	100					
ips	4.25	9.52	19.05	38.1	76.2	152.4	304.8					
cm/sec												
TAPE DIMENSIONS												
Reel	3½	7	14	28	56	112	224					
inches												
cm	8.9	17.8	35.6	71.2	142.4	284.8	569.6					
Width	1½	3½	7	14	28	56	112					
inches												
cm	3.8	8.9	17.8	35.6	71.2	142.4	284.8					
Base Thickness	1 mil	1.5 mil	2 mil	3 mil	4 mil	5 mil	6 mil					
inches												
mm	0.0254	0.0381	0.0508	0.0762	0.1016	0.127	0.1524					
Length	480	1700	1800	2100	3600	5400	7200					
feet												
meters	146	509	549	640	1097	1646	2197					
HEAD DIMENSIONS												
Gap Width	300	300	300	300	300	300	300					
microns												
mm	0.003048	0.003048	0.003048	0.003048	0.003048	0.003048	0.003048					
Interstack Spacing*	1.5	1.5	1.5	1.5	1.5	1.5	1.5					
inches												
cm	0.0381	0.0381	0.0381	0.0381	0.0381	0.0381	0.0381					
STANDARD PANELS FOR 19-INCH (48.26 CM) RACK												
Panel	1	2	3	4	5	6	7	8	9	10	11	12
inches	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
cm	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.318	4.318

## TYPICAL PRICES\*

4-Channel ¼ inch version	\$4990
7-Channel ¼ inch version	\$6950
7-Channel ½ inch (IRIG) version	\$8450

\*Prices are FOB Redwood City, California, U.S.A. Overseas prices available from Ampex specialist in your area.

# AMPEX

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