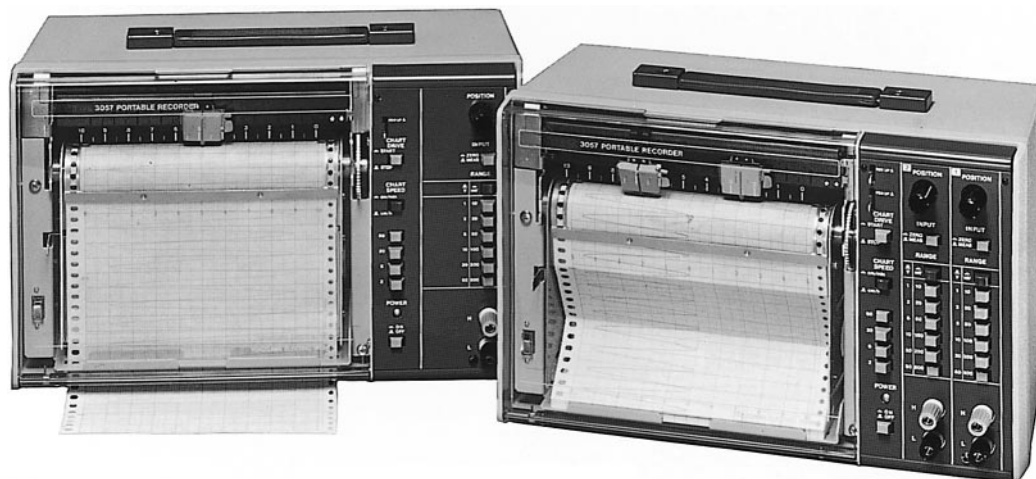


PEN RECORDERS



3057

3057 Portable Recorders



3057
332 × 223 × 174 mm 5 kg
(13-1/8 × 8-3/4 × 6-7/8" 11 lbs)

The 3057 is a compact, dependable 150 mm portable recorder designed for virtually every application, including field and laboratory uses. It measures a mere 332 × 223 × 174 mm, (13-1/8 × 8-4/3 × 6-7/8"), and weighs only 5 kg (11 lbs) for one-pen, AC line operation model.

Exceptionally high reliability and stability are packed into this compact case. For example, the servo mechanism is an entirely new, advanced system using a trouble-free, non-contact ultrasonic pen position transducer.

The 3057 offers a full range of features . . . one or two pens, Z-fold or roll chart, vertical or flatbed, and remote control option. Moreover, power source is user definable . . . external AC or DC, internal rechargeable Ni-Cd battery or ten common 1.5 V batteries (IEC R20P, ANSI D-size, Mono 1.5 V or equivalent).

FEATURES

- 12 CALIBRATED INPUT RANGES FROM 10 mV TO 50 V FULL SCALE
- 8 PUSHBUTTON SELECTED CHART SPEEDS FROM 60 cm/min TO 2 cm/h
- HIGH ACCURACY ±0.5%
- FAST RESPONSE 300 mm/s max.
- RELIABLE, ACCURATE CHART DRIVE USING PULSE MOTOR AND CRYSTAL OSCILLATOR . . . CHART SPEED ACCURACY ±0.25%
- MESS-FREE, DISPOSABLE FELT-TIP PEN
- SIMPLE, QUICK PUSHBUTTON OPERATION FROM THE FRONT
- OPTIONAL REMOTE CONTROLS OF CHART SPEEDS AND CHART DRIVE START/STOP
- TILTED CHART PLATE

The chart magazine can be slanted for quick data review, and convenient note-taking on a flatbed table.

AVAILABLE MODELS

Model	Suffix Codes	Description
3057	Portable recorder
		Number of pens
	1	1
	2	2
		Power requirements
	1	AC line . . . 100, 115, 200, or 230 V AC (must be specified), 50 and 60 Hz
	2	AC line, internal rechargeable Ni-Cd battery, and external 12 V DC
	3	AC line, internal ten 1.5 V batteries, and external 12 V DC
	/CHC	Optional feature Remote chart drive control

Example: 305721/CHC . . . 2-pen, AC line operation model with remote chart drive control option.



PEN RECORDERS

3057



ACCESSORIES AND SPARES

Item	Accessories Supplied at No Extra Cost						Spares	
	305711	305712	305713	305721	305722	305723	Part No.	Order Q'ty
Recording Paper	Z-fold chart (174 mm × 15 m)	1	1	1	1	1	B9529AA	10 units (1 chart/unit)
	Roll chart (174 mm × 20 m)	-	-	-	-	-	B9529AB	10 units (1 roll/unit)
Disposable Felt-Tip Pen Cartridge	1st pen (red)	3	3	3	3	3	B9518CT	3 units (3 pcs./unit)
	2nd pen (green)	-	-	-	3	3	B9518CU	
Rechargeable Ni-Cd Battery (built-in)	-	1	-	-	1	-	A1001ED	-
1.5 V Batteries (IEC R20P, ANSI D-size)	-	-	10	-	-	10	A1003ED	4 units (1 pc./unit)
External DC Power Source Connector	-	1	1	-	1	1	A1044JD	-
Lubricant (2 cc)	1	1	1	1	1	1	G9621AD	1 unit (6 bottles/unit)
Fuse	0.2 A (100 to 120 V)	1	1	1	1	1	A1036EF	2 units (1 pc./unit)
	0.1 A (200 to 240 V)						A1035EF	
	2 A (for Ni-Cd or ext. DC operation)	-	1	1	-	1	1	A1031EF
Power Cord (2- or 3-prong type)	1	1	1	1	1	1	Order by name	
Extra 14-Contact Connector Plug for Remote Control Option	-	-	-	-	-	-	A1003JD	-

Note: One A1003JD connector plug is supplied with a remote control option.

SPECIFICATIONS

Drive System: Automatic null-balancing DC servo mechanism using non-contact ultrasonic pen position transducer

Number of Pens: 1 or 2 (pen distance . . . approx. 5 mm on the time axis)

Writing System: Ink writing using disposable felt-tip pen cartridges

Ink Colors: Red for 1st pen, green for 2nd pen

Effective Recording Span: 150 mm (6")

Accuracy: ±0.5% of effective recording span (includes non-linearity and deadband) at 23±5°C on 500 mV range

Deadband: Less than 0.2% of effective recording span

Maximum Pen Speed (Nominal): 300 mm/second

Chart: Z-fold chart (174 mm × 15 m; 6-7/8" 49 ft), or roll chart (174 mm × 20 m; 6-7/8" × 66 ft), with calibrated width of 150 mm (100 uniform divisions at 1.5 mm/division), 5 mm uniform divisions on time axis

Chart Drive: Pulse motor drive using crystal oscillator

Chart Speeds: 2, 6, 20, 60 cm/min and cm/h (chart speed accuracy . . . ±0.25%)

Type of Input: Floating

Voltage Ranges: 10, 20, 50, 100, 200, 500 mV, 1, 2, 5, 10, 20, 50 V full scale (12 calibrated ranges)

Zero Set: Adjustable for each pen over full effective recording span

Input Resistance: Approx. 1 MΩ constant on all voltage ranges

Maximum Allowable Source Resistance: 10 kΩ

Maximum Allowable Input Voltage (Continuous): 50 V DC on 10 to 500 mV ranges, 250 V DC on 1 to 50 V ranges

Maximum Common Mode Voltage: 130 Vrms (sine wave), 180 V DC

Common Mode Rejection: More than 130 dB at power line frequency, or at DC

Normal Mode Rejection: More than 50 dB at power line frequency

Pen Lift: Mechanical for both pens

Operating Position: Vertical or horizontal (vertical only for Z-fold chart)

Warm-up Time: Approx. 15 minutes

Operating Temperature Range: 0 to 50°C (32 to 122°F)

Humidity Range: 40 to 80% relative humidity

Dielectric Strength: 1,500 V AC for one minute between power line and case, 1,000 V AC for one minute between input terminals and case

Insulation Resistance: More than 100 MΩ at 500 V DC between power line and case, and between input terminals and case

Power Requirements: 3057□1 . . . external AC; 100 V (90 to 110 V), 115 V (100 to 130 V), 200 V (180 to 220 V), or 230 V (200 to 250

V) (must be specified), 50 and 60 Hz,

3057□2 . . . external AC (specify voltage), internal rechargeable Ni-Cd battery (installed, continuously operates about 10 hours on a single charge for one-pen model), and external 12 V DC,

3057□3 . . . external AC (specify voltage), internal ten 1.5 V batteries (supplied in an accessory box), and external 12 V DC

Power Consumption (Approx.):

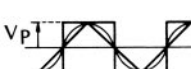
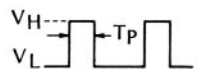
Model	Maximum	Balanced
1-pen model	16 VA	13 VA
2-pen model	22 VA	16 VA

Weight (Approx): 305711 . . . 5 kg (11.0 lbs), 305721 . . . 6 kg (13.2 lbs), 305712 or 305713 . . . 7 kg (15.4 lbs), 305722 or 305723 . . . 8 kg (17.6 lbs)

OPTIONAL FEATURES

Remote Chart Drive Control (Option Code . . . /CHC)

■ Remote control of chart speed by external rectangular waves or pulse train.

Remote Control Signal Waveforms	Rectangular Waves	Pulse Train
Signal Level	 4 V < Vp < 24 V	 +4 V < Vh < +24 V -24 V < Vl < +0.5 V Tp > 1 ms
Max. Signal Source Impedance	600 Ω	50 Ω
Chart Speed	0.3f cm/min (f . . . Hz or PPS)	
Max. Frequency	200 Hz	200 PPS

■ Remote control of chart drive START/STOP by external TTL-level, open collector or contact signal:

L logic level or closed contact CHART DRIVE START.

H logic level or open contact CHARTE DRIVE STOP.

TTL or open collector remote control signal levels:

H . . . +2.4 to +5 V, L . . . 0 to +0.5 V.