

X-Y Recorders (A3)

3023/3024

Specifications



The 3023 and 3024 are top-level, high performance A3 X-Y recorders, available in front- or rear-input models, and one- or two-pen models. All models offer the fastest slewing speed and acceleration. The slewing speed and acceleration of the one-pen model in the Y axis is 2,200 mm/s 7.6 G, and 2,000 mm/s 5.1 G in the X axis.

Features and Benefits

- **Highest-speed -slewing speed: 2,200 mm/s in the Y-axis, 2,000 mm/s in the X-axis**
The use of new, high-torque DC servomotors and pen mechanism results in the highest speed and excellent phase characteristics.
- **Acceleration: 7.6 G in the Y-axis; 5.1 G in the X-axis (one-pen model)**
Two-pen model is 7.0 G in the Y axis, and 4.5 G in the X axis. By combining high slewing speed and acceleration, the 3023 & 3024 can capture fast-changing signals.
- **High-quality traces by using disposable, quick-change felt-tip pen cartridges, and by a light-weight, fast response pen mechanism**
- **Top level accuracy of $\pm 0.2\%$**
- **Quick, convenient operation:**
Major design features include the addition of convenient servo ON/OFF and polarity reversal switches, and pre-amplifiers separated from the input terminals for safety input wiring.
- **Electrostatic paper holddown with backlighted LED for accurate paper alignment.**
- **A choice of front- or rear input model, and one- or two pen model.**
- **Ten scales of calibrated (standard).**
- **Versatile remote controls.**
- **Excellent frequency characteristics.**

Specifications

- Drive System: Automatic null-balancing DC servo mechanism

- Writing Area (Effective Recording Span): X-axis 381 mm (15"), Y-axis 254 mm (10")
- Number of Pens: 1 or 2
- Writing System: Ink writing using disposable felt-tip pen cartridges
- Ink Colors: Red for Y1 1st pen, green for Y2 2nd pen
- Basic Accuracy: $\pm 0.2\%$ of effective recording span (including non-linearity and dead band) at $23 \pm 5^\circ\text{C}$ on 25 mV/cm range
- Error between Ranges: Less than $\pm 0.1\%$ of pen deflection
- Deadband: Less than 0.1% of effective recording span
- Slewing Speed (Nominal): X-axis 2,000 mm/s, Y-axis 2,200 mm/s
- Acceleration (Nominal): One-pen model ... X-axis 5.1 G, Y-axis 7.6 G, two-pen model ... X-axis 4.5 G, Y-axis 7.0 G
- Pen Lift: All pens simultaneously lifted or lowered by PEN UP-DOWN switch on the front panel, or by an external contract or TTL-level signal
- Chart Paper: A3 size graph paper, or roll chart (optional chart drive unit required)
- Paper Holddown: Electrostatic paper holddown with LED spot paper alignment
- Type of Input: Front (3023) or rear (3024) input. Floating, guarded and shielded (polarity reversal switch on the front panel)
- Input Ranges: 50 $\mu\text{V}/\text{cm}$, 0.1, 0.25, 0.5, 1, 2.5, 5, 10, 25, 50 mV/cm, 0.1, 0.25, 0.5, 1, 2.5, 5 V/cm (16 calibrated ranges plus continuous vernier between ranges)
- Zero Set: Adjustable to any point on the writing area
- Input Impedance: Approx. 1 Mohm constant on all input ranges
- Maximum Source Resistance: 10 kohm
- Zero Stability (Nominal): $\pm (1.5\mu\text{V} + 0.02\%$ of effective recording span) $^\circ\text{C}$
- Maximum Allowable Input Voltage (Continuous): 50 V DC on 50 $\mu\text{V}/\text{cm}$ to 50 mV/cm ranges, 250 V DC on 0.1 V/cm to 5 V/cm ranges
- Maximum Common Mode Voltage: 250 Vrms AC, or 350 V DC (3023), 130 Vrms AC, or 180 V DC (3024)
- Common Mode Rejection: More than 140 dB at power line frequency or at DC
- Normal Mode Rejection: More than 50 dB
- Offset Input: Selectable to ± 20 , ± 40 , ± 60 , ± 80 , ± 100 cm (10 ranges) or 0 (OFF) by front panel dial
- Time Base (Standard): Sweep rates ... 0.25, 0.5, 1,

- 2.5, 5, 10, 25, 50 s/cm & min/cm (accuracy: $\pm 0.5\%$), Pens automatically lifted after sweep or reset. Trial sweep available with pens lifted
- Operating Position: Horizontal, vertical or inclined
- Dielectric Strength: 1,500 V AC (3023), or 1,000 V AC (3024) for one minute between power line and case, and between input-guard terminals and case
- Insulation Resistance: More than 100 Mohm at 500 V DC between power line and case, and between input-guard terminals and case
- Power Requirements: 100, 115, 200 or 230 V AC (must be specified), for both 50 and 60 Hz
- Weight: One-pen model ... approx. 17 kg (37.5 lbs), two-pen model ... approx. 18 kg (39.7 lbs)

