

# Feature

## FROM THE PAGES OF HISTORY

### Linear Corporation



#### Photos

1. Founders Ted Farrell (left) and William Schanbacher, 1980.
2. Linear storefront, 1962.
3. First GDO radio controls, 1962.
4. Frequency Shift Keyed (FSK) remote controls, 1971.
5. Delta-3 controls, 1976.
6. Carlsbad headquarters, 1984.
7. The MiniT transmitter, 1985.
8. Moore-O-Matic Ultra-Lift GDO, 1980.

Source: Linear historical files.

## Milestones

- 1961 ▶ Linear Corporation is founded by Ted Farrell, who serves as president and CEO. William A. Schanbacher joins the company as a co-principal, serving as chairman of the board. Linear opens as a retail operation in Los Angeles that sells and installs automatic garage door openers (GDOs).
- 1962 ▶ Linear manufactures its first GDO radio controls with transistors and glass tube amplifiers in large metal boxes. The encoding is a simple single audio tone on the RF carrier. The transmitter doesn't mount on the visor; it mounts under the car's hood!
- 1960s ▶ Throughout the decade, the company introduces new generations of single-tone radios featuring smaller, portable, visor-mounted, battery-powered transmitters.
- 1970 ▶ Linear manufactures Frequency Shift Keyed (FSK) remote controls. FSK transmitters are encoded by frequency modulating an audio tone on the RF carrier. FSK receivers are more secure than single-tone receivers. To activate, they require detecting the correct RF carrier frequency along with the shifting tone, reducing the chance of false operation.
- 1976 ▶ Linear introduces Delta-3 digitally coded radio controls that use custom proprietary integrated circuits. This allows the remote controls to provide a new level of reliability and security. The Delta-3 equipment can be field coded by simply setting a dipswitch. Nearly 30 years later, Delta-3 radio remote controls are still being manufactured and widely used.
- 1978 ▶ Linear's "Standard Digital" coding format facilitates the creation of multi-channel transmitters and receivers. Multiple receivers no longer must be "slaved" together, and transmitters feature more than one pushbutton.
- 1979 ▶ Linear acquires GDO manufacturer A.E. Moore Company of Waupaca, Wis., creates the Moore-O-Matic company, and designs a new type of GDO. The injection-molded bulkhead design of the screw-drive Model 838 opener weighs only 24 lbs., compared to previous 60-lb. GDOs. Its digital control board allows the opener to conform to demanding UL safety requirements.
- 1984 ▶ Linear moves its corporate headquarters 100 miles south of Los Angeles to a new 30,000-sq.-ft. building in Carlsbad, Calif.
- 1985 ▶ Linear develops the first million-code radio format. MegaCode radios eliminate the need to field code transmitters. Each transmitter is factory coded to a unique digital code.
- 1985 ▶ Transmitters reduce in size with the incorporation of SAW resonators. This component locks the transmitter on a specific radio frequency, eliminates the need for tuning, and prevents drift. Linear introduces the MiniT, the company's first miniature GDO transmitter.
- 1987 ▶ The cofounders of Linear sell the company to Nortek, Inc., of Providence, R.I.
- 1988 ▶ Grant Rummell becomes president of Linear.
- 1994 ▶ Linear enters the access control market, introducing its AccessMaster product line.
- 1996 ▶ The company's first telephone entry product, the AE-1, is introduced.
- 1998 ▶ Linear sells the assets of Moore-O-Matic to the Chamberlain Group.
- 1999 ▶ Linear acquires Stanley-Whistler's Multi-Elmac Multi-Code product line and begins manufacturing Multi-Code radios.
- 2001 ▶ Linear introduces a newly designed GDO, the company's first GDO branded with the Linear logo.
- 2003 ▶ Adding swing and slide gate openers to the growing product line, Linear acquires Operator Specialty Company (OSCO) of Casnovia, Mich.