

TRANSMITTER TECH

Putting the "Radio" in Radio Control

BY THE RC CAR ACTION TEAM

WHEN YOU THINK OF RADIO-CONTROL CARS, you probably put way more emphasis on the car than the radio. Particularly in today's RTR world, it's the action on the ground that gets all the attention, while the transmitter is something you probably don't think that much about. Until the next innovation, that is. As the part of our hobby that we actually hold in our hands every time we drive, shake-ups to the transmitter-tech status quo can have a dramatic impact on how we experience and enjoy radio control. Take a look at how radio technology has evolved since the first issue of *RC Car Action* and you're sure to agree.



Simply adding a wheel to the transmitter was a big change from the 2-stick airplane-style transmitters that were the default for RC anything. Seen here is a Futaba 2F "brown box." The lever on the side is the throttle; you held the radio against your left forearm and wrapped your index finger around the back of the metal case to operate the lever. Ergonomic, it wasn't.



Pistols quickly gained popularity through the 1980s, and many a modeler chose a Futaba Magnum, though stick radios were still common. And they still are today, just not in the United States; European drivers love 'em.



Pistol or sticks? Futaba covered both bases with this ad, featuring two guys who are now in their 40s. Needless to say, RC advertisements are a lot cooler today than they were in the '80s.



As seen in this ad from our first issue, Airtronics was an early proponent of offset-wheel ergonomics. Or in the case of the XL2P, offset everything—most of the radio is separated entirely from the grip.



This Futaba Magnum PCM1024 was state of the art before the transition to modern computer radios and LCD screens. Endpoints, exponential, and subtrim were all set by dials, and tiny DIP switches set channel mixing, fail-safe, channel reversing, and activated PCM operation. PCM stood for "pulse code modulation," which meant the signal was digitally encoded. The actual signal carrier, however, was still FM.



Airtronics's Caliber series wasn't the first to use an LCD display, but it set the standard for computer radios. The Caliber 3PS was winner of the first Readers' Choice Award for "Best Transmitter," back in 1996. It wouldn't be Airtronics last award.

Airtronics went on to win 12 consecutive Readers' Choice Awards, with eight of them going to this transmitter: the M8. Through the early 2000s, RC transmitter tech held steady with FM signals and LCD screens. Software enhancements for customizing throttle and steering action varied from brand to brand and response times got faster, but a real innovation bombshell was not to come until 2004.



Airtronics' M12S is the brand's current top of the line and the choice of top pros, including Ryan Cavallieri, Kody Numedahl, and new IFMAR 2WD Off-Road World Champion Spencer Rivkin.



Up until 2004, every transmitter, from AM cheapie to high-end pro radio, required the user to set its frequency using a set of matching crystals. Or if you were fancy, you may have had a frequency-synthesizing transmitter and receiver. But you still had to choose a frequency, and if someone was on it...then wait your turn, kid. Spektrum changed all that in 2004, with modules to convert the popular pro radios of the day to 2.4GHz. Spektrum's first complete 2.4GHz radio system followed in 2005, and the auto-channel-selecting technology has trickled down to transmitters across the board—we haven't changed a crystal or twisted a frequency dial since.



Spektrum's current top gun and reigning Readers' Choice Award champ is the DX4R. Spektrum has won the award every year since 2008.

Traxxas scored an Innovation of the Year award in 2012 for the TQi, which integrated transmitter and smartphone for the first time. Combined with the Traxxas Link app, the TQi transmitter and a high-res, full-color graphic user interface enabled easy programming, model selection, channel setup, and even recordable telemetry feedback via a photo-realistic "dashboard." Initially compatible only with Apple products via a "Docking Base," the latest TQi connects via Bluetooth and supports Android as well as iOS devices. Very trick.



As for integrated displays, higher resolution and full color are the growing trends, as seen here with Futaba's latest flagship: the 4PX.

WHAT'S NEXT?

With the advanced capabilities of today's radio systems, it's hard to imagine where they'll go next. Bigger, sharper, brighter screens—but what else will they be able to do? We look forward to finding out. RC tech never sleeps! 🚗