
LOCOLINC



A REALISTIC APPROACH TO COMMAND CONTROL

A lot has been written lately on the subject of command control. Complicating the issue, there are several approaches by which the various command control system manufacturers have implemented their command control schemes. This discussion starts by addressing the question, just what is command control and how does it differ from conventional control? We will also take a look at the differing control system approaches.

Simply stated, command control is the ability to individually select and independently control each locomotive on a layout.

On a conventional control layout, the track voltage is varied over a track section, thereby uniformly affecting any and all locomotives within that track section. All locomotives move in the same direction and at the same relative speed.

Under command control, encoded signals are sent to an individually selected locomotive on a section of track with other locomotives. Each locomotive receives its own direction and speed instruction and operates independently of any other locomotives on the layout.

Command control systems require three essential elements: an encoding device, a decoding device, and a transmission medium to carry the control messages. The decoding device, frequently called a receiver, resides in or near the locomotive selected for control. The encoding unit usually has the ability to send control messages to several or all receivers in the system. Usually the encoding unit also has some means of selecting the specific receiver for the control message.

Most traditional command control systems rely on the track as the transmission medium for sending encoded signals to locomotives. The early command control systems, developed approximately twenty years ago, used umbilical cords or tethered cables to connect to the track. While these control systems often provided model railroaders with the individual control they wanted, there are limitations caused by using the track to transport control signals.

Track gets dirty, resulting in erratic or spotty signals. The track will also attenuate the signal; meaning the signal weakens over the length of the rails. Plus any

time direct wheel-to-rail contact is lost, even momentarily as is frequently the case with dirty wheels, the control signal may also be lost. Most commercial command control systems available today still employ the track as the transmission medium and all of these systems are subject to the problems described above.

A more practical medium is the air; transmitting control signals via radio waves. In essence, the control signal is sent directly to the locomotive or device for control. There's no need for umbilical cords, tethers, signal repeaters, or any of the expensive, time-consuming and cumbersome wiring required for track transmission.

Many radio transmission control systems were developed around AM transmitters originally designed for the model aircraft and boat hobbies. These systems were quick and inexpensive to implement, requiring minimal engineering modification, if any, to the transmitter, and sufficient receiver design to accommodate the locomotive vehicle.

Based on the "one transmitter-one receiver" control unit, modi-

fied AM design schemes have proven expensive and inadequate for the model railroader who typically has many locomotives to control. AM transmission is also susceptible to any signal whose varying amplitude causes interference. While AM radio wave transmission works fine for the model aircraft hobbyist controlling one vehicle at a time in a remote outdoor environment, it has proven impractical for application to model railroad layouts.

Keithco, manufacturer of the LOCOLINC® family of addressable radio control products, has taken an original and technically far-reaching approach to command control. Every LOCOLINC product is designed with the model railroader's needs and interests at heart. LOCOLINC operates at 75MHz FM for reduced interference in indoor and landscape environments. Beginning with the patented, award-winning design of the hand-held transmitter, each LOCOLINC product has been developed to provide convenient, precise, and reliable control.

The comprehensive LOCOLINC

family of control products includes locomotive receivers, accessory receivers to control turnouts, servo receivers for live steam, and transmitters capable of commanding up to 64 locomotives and 256 accessory devices.

Locomotive receivers decode signals for speed, direction, directional lighting, multiple unit operation, emergency stop, and bell and whistle control. Accessory receivers decode signals to actuate motorized or twin coil turnouts, trackside lighting, and dispatcher switching.

There are many unique features and capabilities only available with

LOCOLINC. At initial set-up of each locomotive, for instance, the transmitter can adjust for individual locomotive motor efficiency. This important feature assures that each locomotive in a multiple-unit train moves at the same speed.

In addition to slow speed adjustment, Keithco has pioneered such features as track or battery voltage operation, realistic multiple-unit operation, and dispatcher

switching. Only LOCOLINC addressable radio control systems give model railroaders control over their entire layouts – locomotives and accessories – with prototypical realism.

Keithco's engineers are dedicated to bringing the highest standard of consumer electronics to the model railroad hobby. All LOCOLINC products are original engineering designs employing state-of-the-art electronic circuits, microprocessor technology, and electronic manufacturing processes. As a result of efficient engineering designs and advanced manufacturing, LOCOLINC systems are also the most cost-effective control products on the market.

To every model railroader investigating command control, look to LOCOLINC for control realism, comprehensive control capabilities, the convenience of wireless operation, and maximum value for your layout dollar. Call or write for more information on LOCOLINC addressable radio control products for N-through G-scale layouts.

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The LOCOLINC family of addressable radio control products includes:

TRANSMITTERS

- KT-64** Controls up to 64 locomotives and 256 accessory devices
- KT-32** Controls up to 32 locomotives and 128 accessory devices
- KT-16** Controls up to 16 locomotives and 64 accessory devices

LOCOMOTIVE RECEIVERS

- KLR-101** 1-Amp
- KLR-102** 2-Amp
- KLR-105** 5-Amp
- KLR-100S** Servo receiver for live steam (controls 2 servos)

ACCESSORY RECEIVERS

- KAR-104M** Controls up to 4 motorized switch machines
- KAR-104T** Controls up to 4 twin-coil switch machines

KAR-108M Controls up to 8 motorized switch machines

KAR-108T Controls up to 8 twin-coil switch machines

ACCESSORIES

KBC-110 Battery charger