

ACCUSPEED™

Advanced Automatic
Remote Speed Control
For Locomotives



CATRON
theimeg™

With more than 55 years of radio frequency experience and nearly 10,000 locomotive and rail related installations worldwide, Cattron-Theimeg™ is the largest provider of industrial portable radio remote controls (PRRC) in the world. The ACCUSPEED system has been developed using this vast experience as the most powerful and technically advanced speed-based system available.

ACCUSPEED maximizes safe and efficient locomotive operation, industrial railcar loading and rail yard operations by giving the operator complete secure control while maintaining an optimum vantage point protecting the operator as well as the locomotive and lading equipment. With the light-weight, ergonomic Operator Control Unit (OCU), the operator simply sets the desired direction and speed and the advanced on-board Locomotive Control Unit (LCU) continually applies the right amount of throttle or brake to maintain that speed regardless of track grade or train mass. The operator is not required to constantly judge speed, giving throttle or applying brakes, and can concentrate more on train movements and track conditions. ACCUSPEED's highly intuitive two-way digital data feature with LED and text displays enables an operator to quickly understand any situation occurring during operation.

The ACCUSPEED system meets and exceeds FRA Guidelines 2001-01 for safe locomotive radio remote control operation. The OCUs also meet all U.S. FCC and Industry Canada requirements with respect to narrow band FM radio 12.5 kHz bandwidths.

ACCUSPEED is more than powerful technology. The ACCUSPEED system also comes with Cattron-Theimeg's extraordinary experience and understanding of rail operations. With our unparalleled service, expert training and support, you can be sure of a safe, effortless implementation and integration into your operation.

Primary Features

Cattron-Theimeg engineers have loaded the ACCUSPEED system with safety features to ensure accurate, fail-safe operation. The ACCUSPEED OCU incorporates the exclusive Cattron-Theimeg **Digital TALKBACK™** feature that provides two-way digital data communication between the LCU and the OCU without depending on a separate 2-way voice radio. **Digital TALKBACK** confirms digital communication and alerts the operator should the communications be interrupted for any reason. Function LEDs and a text display allow the operator to monitor critical status information being "fed back" from locomotive sensors. Items displayed include confirmation of all operator switch changes. An OCU mounted alphanumeric LED display also confirms the locomotive speed, air pressures and other vital conditions.

Synchronized time sharing (STS) provides for operations of 10 systems on one radio frequency while using Cattron-Theimeg's digital **Talkback** system for status display on the OCU. Each system consists of two OCUs and one LCU. When used with a repeater, STS will automatically seek the best signal path. STS is a **closed loop control system**, meaning the operator gets an extensive feedback of information from the LCU to the OCU.

Pitch-and-Catch permits two operators, each with their own OCU, to direct the movements of one locomotive. Although only one operator at a time has primary control, both can operate safety functions such as horn, bell and emergency brakes.

Digital Event Recorder is a state-of-the-art improvement over conventional data logging. The ACCUSPEED recorder monitors and records all radio commands to the locomotive as well as a data log from the LCU for troubleshooting purposes. This presents a highly accurate depiction of events because all locomotive settings are recorded and processed to the OCU. All information is recorded and stored for 96 hours.

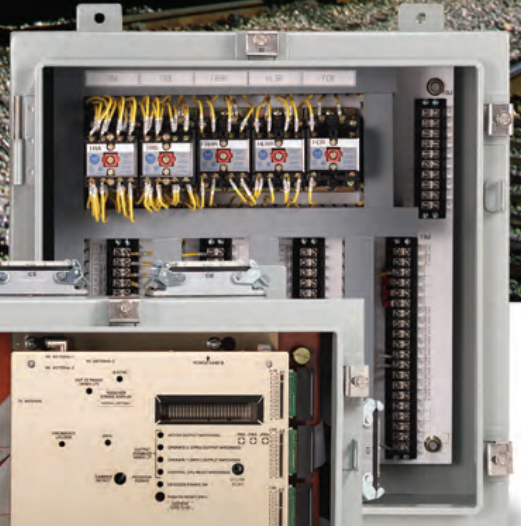
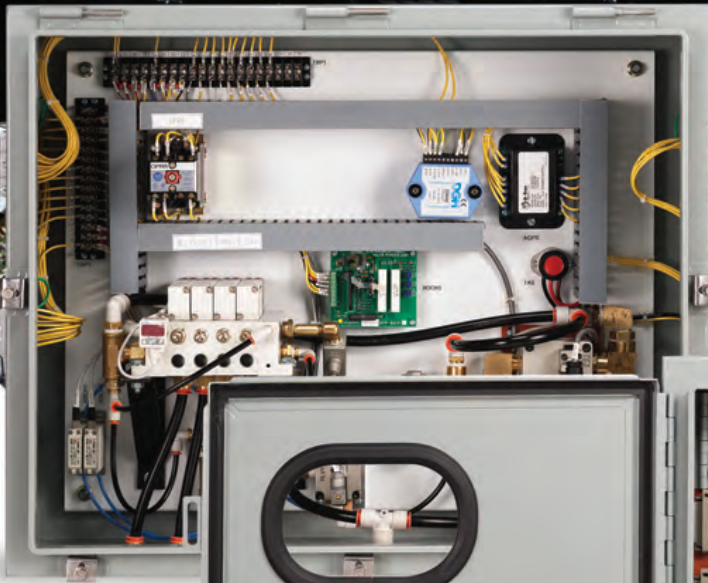
Signal integrity of primary information, secondary information and data is assured by ACCUSPEED's multiprocessor. The on-board LCU has triple microprocessor architecture to provide the highest level of digital message security while each circuit board has its own shielded compartment maximizing EMI/RFI protection.

Three compact control boxes, which divide pneumatic controls, assure ease of installation, interconnectability and maintenance. The control boxes are provided as a pre-installed kit allowing advance installation of the pneumatic and electronic packages.

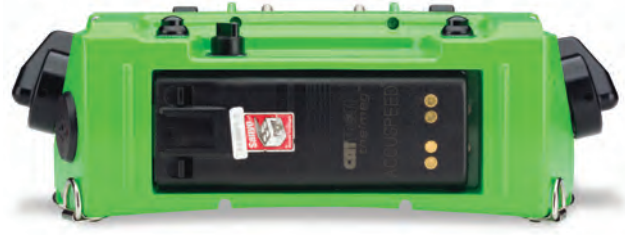
Immediate wheel stop/start indication is transmitted from the LCU that the speed has changed from "movement" to "zero" and from "zero" to "movement". The OCU emits a two-tone alert along with an automatic unsolicited message on the display that the wheels have ceased or started turning. The operator does not have to input any additional information to access the display.

A Tilt Switch (internal mercury tilt switch) disables movement of the locomotive if the OCU is not oriented in an upright position for a brief period of time. The LCU will also generate a voice-synthesized distress message broadcast over an existing two-way voice communication channel.

A Vigilance Function requires the operator to activate a control function or push a vigilance button at least once every 60 seconds while the locomotive is in motion or all movement is disabled. Time-out warning occurs ten seconds prior.



Worldwide Experience Worldwide Quality Worldwide Service



Additional Features

- Lightweight Magnesium OCU is suitable for extreme outdoor operation -40° C to 60° C (-40° F to 140° F). All switches are long life units that are sealed, providing water and dust protection.
- LCU with a total of 48 solid state digital inputs and 96 solid state digital outputs.
- Breakaway vest harness accompanying the OCU provides the most flexibility, utility and operator comfort available.
- Extensive Power “ON” Self-test Diagnostics, ensure safe start-up.
- External and Internal Data Logging for system and reliability administration.
- Single Speed Select Lever for Automatic Speed Control with eight zones of customizable speed operation.
- Automatic Brake Lever/Override Control with six zones of operation.
- Independent Brake Lever/Override Control with five zones of operation.
- Tilt time extend, “TIME” switch allows for extended time for activities that may require the operator to tilt the OCU.
- High intensity sound alert devices can be heard in any direction with multiple programmable tones and pulse rates for unique alerts such as different sounds for “tilt”, “new message” and loss of communications link.

For more details on all of these features and a complete list of system specifications, contact your Cattron-Theimeg representative or the nearest Cattron-Theimeg office.

Other Radio Remote Control Systems

MP 96 RCL Cattron-Theimeg's non-speed control top of the line locomotive radio remote control system with many of the above features and all of the quality and reliability.

QC - The QC (Quick Connect) system is a standardized interchangeable portable control system with no fixed installation. The QC is designed to interface with locomotives equipped with American Association of Railroads (AAR) standard multiple unit (MU) connections. The QC offers an extremely cost effective way to quickly move more than one locomotive with radio remote control.

TH-EC/LO - The TH-EC/LO system's modular concept offers multiple options and configurations for greater flexibility and future expandability. The TH-EC/LO is the only radio remote control system that complies with the EN50239 European safety regulation for locomotives.

Ballast Car Unloading - Cattron-Theimeg pioneered the development of the radio remote control of ballast car doors, greatly increasing the efficiency and safety of a labor intensive, hazardous operation.

Overhead Cranes and Industrial Machinery - Cattron-Theimeg is the world leader in radio remote control systems for overhead cranes, ship loaders and many other industrial machinery applications where greater efficiency and safety can be achieved by allowing an operator to work from a better vantage point and a safer distance.

