

THE-EC/LO

Industrial Radio
Remote Control
From Cattron-Theimeg, Inc.



TH-EC/LO Modular Flexibility

The TH-EC/LO remote control system is the first remote control in the world which was specifically designed to adhere to the European safety regulations for locomotives (EN 50239). The modular concept, with multiple options, provides a versatile platform that can be customized for many applications. At the same time, the potential for accidents is reduced through improvements in safety features.

The TH-EC/LO is the result of a software and hardware design effort which incorporates technology required by the latest European regulations, especially EN 50126, EN 50128, EN 50129 as well as the requirements of the VDV 201. This guarantees a safe operation of a remotely controlled locomotive providing an important tool for increasing the affordability of an efficient switching operation.

The system is suitable for all types of locomotives and fulfills the highest safety requirement of the risk class AK6 (DIN v 1925) and levels IL3 (EN 50128), SIL3 (EN 50129) and SIL3 (IEC 1508) for these applications.

The TH-EC/LO has a modular design which can be changed and expanded to handle additional tasks. It often makes sense, for example, to control very long trains not only with one transmitter, but with two transmitters in a pitch and catch operation. This reduces the need for operators to walk long distances while switching long trains, making the job safer and easier. Another option allows electric switch devices to be operated remotely.

Not available in USA or Canada

CATTRON
*theimeg*TM

TH-EC/LO Features

TH-EC/LO

Both the transmitter and receiver electronics include a modern dual microprocessor system. Cattron-Theimeg uses patented technology to allow multiple systems to operate on the same radio frequency. This allows the system to be used in all applications, for multiple users, despite the ever decreasing number of available frequencies. The Cattron-Theimeg multiple-use system lets a number of systems operate independently within a common area.

A configuration plug in the transmitter and the receiver is used to adapt the system to each specific locomotive or application. This simplifies and speeds up service and also reduces the spare parts inventory requirement, especially when a variety of locomotives are operated by the same customer.

Transmitter

Two basic types of transmitter housings are available. The first version uses the well-known x-y joystick. The brake and throttle commands are activated by moving the joystick in the appropriate direction. The second version uses a lever control, up to five throttle/brake controls are included in a control range. The first and the last step can selectively be set up as a momentary or fixed step.

Both transmitters are light and comfortable and designed using the latest ergonomic inputs. The controls are recessed in order to avoid an unintentional activation of commands. Since the main control functions are located in the center of the transmitter, the operator can use either hand to run the locomotive comfortably. An integrated tilt switch that provides a "man-down" alarm if the transmitter is tilted for a period of time. Optional LED's can provide feedback from the Receiver to verify that certain commands have been carried out.

Each system is delivered with a harness, made of weather-resistant material, having easily adjustable straps with quick disconnects. The harness, specifically designed for this application, adjusts to fit to the body for maximum comfort. The transmitter, with its slightly curved front allows the operator the smallest location, especially between cars, during coupling and uncoupling. The transmitter is simply slipped into the harness and secured with a snap. This keeps it from falling out of the harness, no matter what action is being taken.



The Receiver

Two basic versions of the receiver are available. In the first, the electronics are contained in an aluminum housing which has protection class IP 65. In the second version, the electronics are housed in a 19" rack.

Both versions have a modular design which uses plug-in cards to allow for easy access and a quick exchange of damaged components. In both versions, the receiver interface is wired to a multi-contact quick-disconnect connector. The plug-in card mounting rack in both can be swiveled for easy access and service.

All received commands as well as the system status can be read on an LED display field and two 7-segment LED displays which are visible externally. This gives the locomotive operator or a service technician the status of all functions at any time.

WIRELESS

Frequency Range: 405 - 480 MHz (70 cm Band)
Multiple use of one Frequency: Tast (Standard)
Mix (Option)
Vario (Option)
Modulation: FM (Frequency Modulation)
Channel Separation: 20/25 kHz (12.5 kHz optional)
Transmitted RF: 300 mW at 50 Ohm (Standard)
Receiver Sensitivity: < 1 μ Volt
Transmission Rate: 4800 bit/sec / RF transmission
Response time: approx. 50 ms (typical)
Error detection: diverse redundancy in hardware
Message structure: PPM, HDB3, VWC
Message Security: CRC (Cyclic Redundancy Check)
Address Coding: 16 bit

Operating Temperature: 20 bis +60°C
Protection Class: IP65
Transmitter Weight: approx. 1,9 kg depending on model
Receiver Dimensions: Type 1:
Type 2: 600 x 250 x 120 mm (L x W xH)
19" Rack, 3 levels
Command output: parallel relay output (Standard)
parallel optocoupler (Option)
serial (Option)
Output interlocks: available for all locomotive types
Crew monitor: tilt switch, crew alert
Certifications: EBA and PTT approval in almost all European and many overseas countries

* Specifications are subject to change or revision without notice. Consult the factory for verification.



Cattron-Theimeg Americas Ltda (Brazil)
Phone: 55-19-3243-7803
Fax: 55-19-3243-9258
e-mail: cattronamericas@cattron-theimeg.com

Cattron-Theimeg Europe
ISO 9001 Registered
(Germany) GmbH & Co.
Phone: 49-2161-63630
Fax: 49-2161-6363100
e-mail: theimeg@theimeg.de

Cattron-Theimeg (United Kingdom) Ltd.
ISO 9001 Registered
Phone: 44-1932-247 511
Fax: 44-1932-220937
e-mail: sales@cattronuk.com

Cattron-Theimeg Africa
(PTY) Ltd. (South Africa)
Phone: 27-11-425-1123
Fax: 27-11-849-5717
e-mail: cattron@iafrica.com

Worldwide Experience

Worldwide Quality

Worldwide Service