



hubbell industrial controls, inc.

FEMCO™



Radio Transmitters and Receivers
for Remotely Controlling Cranes,
Locomotives and Other Machinery

FEMCO™ Radio Crane Control Systems

Remote control takes operator out of the cab providing him with improved visibility and total control from a ground position.

120v AC, 72–76 or 450–470 MHz,

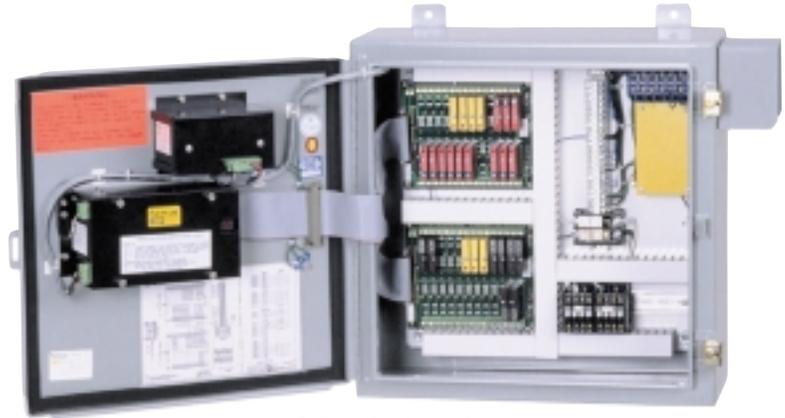
Compact Style with Micro-Controller

- High speed microprocessor.
- Bi-phase, digital signal transmission.
- Compact receiver fits even the smallest crane.
- Crystal controlled transmitters and receivers.
- No interface relays required for controllers through size 4 contactors.
- Unique 7 bit address code.

250v DC, 72–76 or 450–470 MHz,

Compact Style with Micro-Controller

- Reliable, efficient, economical operation of electric overhead cranes from portable transmitter.
- Microcomputer with status display and built-in self diagnostics
- Bi-phase, digital signal transmission.
- 270v DC solid state relays. No interface relays required for controllers through size 8 contactors.
- Unique 7 bit address code.



AC Radio Receiver

FEMCO™ License Free Radio Control Systems

System approved for operation under FCC Part 15 rules

—no user license required.

- Extremely compact and cost effective systems.
- Single or two speed.
- Digital FM signal provides exceptional immunity to noise.
- Key-ring, belt-clip or hand-held transmitters with up to eight single or two speed buttons.
- Auto power off extends battery life.
- All transmitters rated NEMA 3 for indoor/outdoor use.
Receivers rated NEMA 4X for indoor/outdoor use.
- Output relays can be individually set for momentary or latched function.
- Optimal security...65,000+ address codes, user set by dip switch.



License Free Transmitter and Receiver

FEMCO™ Diagnostic Display Module

For new and existing microprocessor based crane and locomotive controls.

- 2 line x 20 character backlit LCD display.
- Mount on receiver rack or microprocessor unit.
- Fault logging with local or remote down load capability.
- Battery backed real time clock.



Diagnostic Display

FEMCO™ Intelligent Radio Locomotive Control Systems

**Control direction and speed of locomotive from ground,
plus sound horn, apply brakes or control couplers.**

Reduce costs by reducing operating crew size. Taking the operator out of the cab, allowing him to be where the action is, eliminates hand signals or second-hand radio voice communications and puts the operator in complete, real time control.

Control is secure because biphase data transmission and Cyclic Redundancy Check codes prevent false motions and provides for controlled shutdown. Digital messages are checked for address, format, and content before any motion or function is activated. While in motion, check circuits continuously monitor the received message and the quality of the RF carrier signal. Any error or loss of signal integrity will de-energize all controlled functions and apply the brakes.

FEMCO™ Microprocessor Radio Locomotive Control Systems consist of three factory assembled and tested components: Transmitter, Receiver and Pneumatic Controls.

Transmitters

Five sizes are available, including a compact transmitter designed primarily for locomotive control (please see back page for more complete descriptions). Choice depends on control functions and portability required for the application. The portable, lightweight transmitters are easier to operate than manual controls.



**Mid-size Transmitter
with Harness**



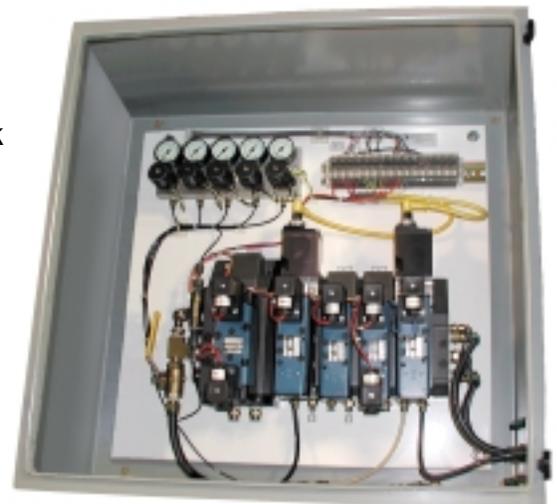
Locomotive Receiver

Receivers

- High speed data rate for fast, responsive operation.
- Easy to maintain. Self diagnostics identify problem area via the status display.
- Up to four systems can share same radio frequency.
- 72–76 or 450–470 MHz FM.
- 12v DC, 24v DC, 36v DC OR 72v DC.
- NEMA 12 enclosure.

Pneumatic Power Pack

- NEMA 12 enclosure houses pneumatic controls for remote locomotive operation.
- Binary pneumatic valves regulate air pressure for control of throttle, independent brakes and train line brakes.
- Solenoid valves control other functions, such as horn.
- Very compact manifold/valve assembly.
- Analog pressure indicators.



Locomotive Pneumatics

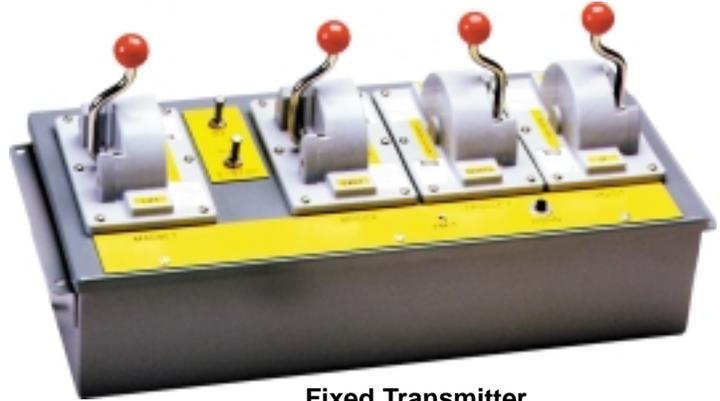
Wide Selection of Transmitters

Used with FEMCO radio receivers for controlling cranes, locomotives and other moving equipment.

Hand-held, compact, full-size, or fixed...all transmitters operate on a licensed frequency in the 72–76 MHz or 450–470 MHz bands. All feature microcontroller technology and ultra reliable biphase digital FM data transmission. A typical transmitter has three or four stepped or stepless lever switches for main motion control and toggle switches or push buttons for auxiliary functions. An LED flashes when transmitter is operating normally and also indicates when battery needs recharging or replacement.

Fixed Transmitter (right)

- Four function control levers with up to five speed points in each direction.
- NEMA 12 housing for surface mounting.
- Remote antenna mounting with coax cable connection to transmitter.
- Available for 120v AC or 250v DC. No battery.



Fixed Transmitter

Full-size Transmitter (not shown)

- Rugged, weather proof case.
- 12 volt Ni-cad battery capable of 500 or more recharge cycles. Each charge provides up to 40 hrs. continuous service.
- 8 hour recharge time.
- Internal antenna.
- Adjustable shoulder-type carrying harness included.



Mid-size Transmitter

Mid-size Transmitter (left)

- Levers similar to a crane cab master controller. Levers have positive detents to provide feedback to operator.
- Rechargeable 12 volt Ni-cad battery provides up to 20 hrs. continuous service per charge.
- 8 hour recharge time.
- Internal antenna.
- Adjustable shoulder-type carrying harness included.

Compact Locomotive Transmitter (not shown)

- Designed specially for radio locomotive control systems.
- Smaller, for use in tight conditions, Lighter weight allows longer wearing cycles.
- Throttle position and brake pressure controlled by one switch. All switches located for ease of operation.
- Rechargeable 12 volt Ni-cad battery provides up to 40 hrs. continuous service per charge.
- 8 hour recharge time.
- Internal antenna.
- Adjustable shoulder-type carrying harness included.



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